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ABSTRACT

This paper discusses the implications of curriculum development and curriculum innovation needs for education in general and educational administration and educational planning in particular. It points out how administrations should change their role to open up educational systems for change and the place of a curriculum development planning unit within educational planning. (Author)

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MODERNISING EDUCATIONAL ADMINISTRATIONS TO FACILITATE THE FORMULATION AND IMPLEMENTATION OF CURRICULUM DEVELOPMENT PLANS

J. Zammit Mangion

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INTRODUCTION

Recent literature on world problems in education and educational planning points alarmingly to dysfunctions between what goes on in schools and what education should provide. In the rush to meet ever increasing enrolment needs, to add new branches of learning to existing systems, to fulfil manpower targets, etc., educational planners have often had to give prior attention to quantitative aspects leaving quantitative needs to take their own course. Even where attempts have been made to better the quality of education, it has been noticed that qualitative planning has often touched the husk of the problem, but not the kernel.

Indeed, a lot of thought has been, and is still being given, to improvement and innovations in the content and methods of education. Special attention has been given to curriculum development in the last ten to fifteen years or so. Curriculum theory, though still in its infancy, has made important progress in a number of fields. There has been a marked advance in educational technology. The need to innovate, revise, update, adapt and change curricula is widely accepted, if not as well understood and implemented. International organisations like Unesco and OECD propagate the need to innovate educational systems and help countries materially as well as morally to do so.

The substance of this short study is that there exists an important distinction between introducing curriculum innovations in schools on the one hand and opening up an educational system to take curriculum change and innovation - in other words, curriculum development - in its stride, on the other. Educational systems are working under rapidly changing environmental, social, economic, cultural and scientific conditions; educational aims and goals are rapidly changing, too. The mere introduction of unconnected innovations at different points in time, however important the exercise may be, touches only the exterior of the educational problem. There is need to equip educational systems to train and educate individuals to understand, cope with, master and, if possible, direct change and the changes that are taking place all around them. This involves an educational system that is, at every stage and level, alive to the needs and changes in its immediate environment, in the country around it, in the nation as a whole, and in the wider world of which every individual forms a part.

Curriculum development involves a constant adaptation of aims, content and methods to individual needs and the needs of the outside world. This, in turn, involves the constant evaluation and re-evaluation of the content and methods of education against curriculum objectives, of curriculum objectives against educational aims, of educational aims against individual and social aims and needs. Curriculum development also means the constant adaptation, innovation, revision

and changing of curricula to suit changing and specified needs; it has to be conducted in an organised, developmental, and hence, planned way. In this way, the formulation and implementation of national plans may be rendered more effective.

The task requires important and often fundamental changes in the role of teachers and their training, in the role and the services of administrations, in the approach to educational planning and educational planning problems. New institutions and new mechanisms have to be created and set up, maintained and adequately fed for the purpose. The channels of communication, of service, of participation and of feedback between schools and curriculum planners, between curriculum planners and educational planners and, again between educational planners and schools, have to be strongly linked and welded into a dynamic, functional system. Educational planning must pay more attention to curriculum planning and to problems emerging from the management of curriculum development in order to make educational plans more effective and fruitful.

I. THE NATURE OF CURRICULUM AND ITS PLACE VALUE IN EDUCATION AND EDUCATIONAL PLANNING

Curriculum planning, curriculum design and curriculum organisation have always been central to the educational problem. Since the beginning of formal education, philosophers and pedagogues have been increasingly engaged in determining and refining what should be taught in schools and how to go about it. Parents, by virtue of the fact that they act on behalf of their children, have always directly and indirectly influenced what and how their children should learn. From another direction, psychologists and sociologists, social scientists and intellectuals in general have contributed immensely to the advancement of educational aims, content and techniques. Politicians, social reformers, religious leaders, groups with vested interest and public bodies have, at all times, tried to control, or share in the control of the schools. In recent times, the students themselves have risen up to demand that they, too, have a say in determining what they should learn.

Curricula may be said to be the what and the how of teaching and learning. It is a common saying that it is the business of the schools to teach. In the layman's mind, the curriculum of a school, or the one followed by a student, consists of a course, or a series of studies which a student undergoes to attain certain clear and well-specified ends. It is the business of the schools, or of an educational system to offer the best courses of instruction, or education for the purpose. The efficiency of an educational system is largely judged by the quality of its products, who in turn, are influenced by the quality of its processes. Curricula form a very substantial and important part of the educational process.

The educational process is the manner in which what is going to be taught is imparted to the learner according to stated educational aims, objectives and policies. Curriculum process involves a series of related and interdependent phases which start from the stated objective and end in the assertion that the required result has been achieved. The stages which are sequential from the point of view of time as well as of the operations involved and which are basic to curriculum theory, are:

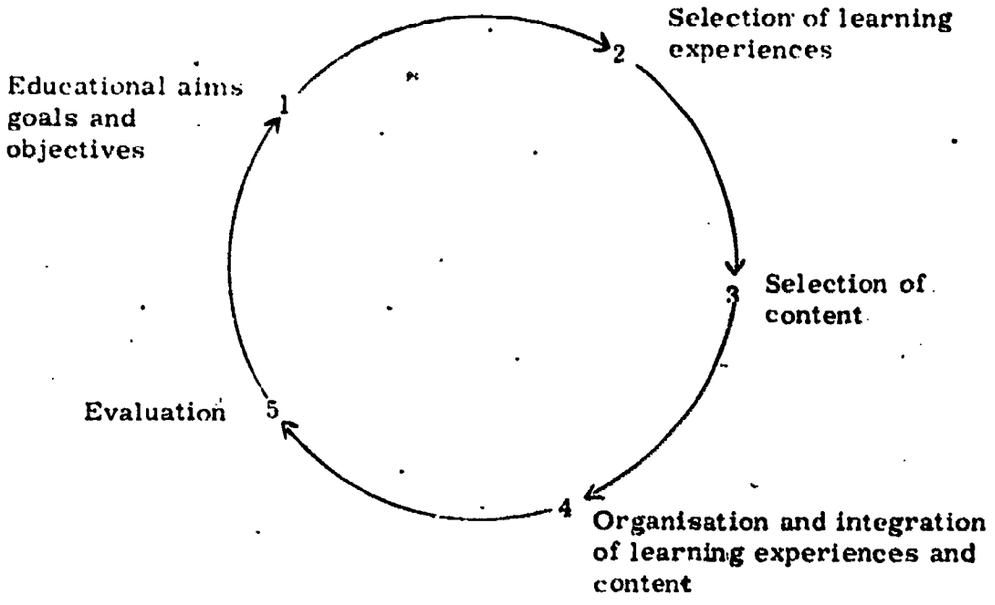
- The translation of stated educational aims into curriculum goals and objectives;
- the selection of learning experiences calculated to help in the attainment of these aims and goals;
- the selection of content (subject matter) through which certain types of experiences may be offered;
- the integration of learning experiences and content with respect to the learning-teaching process within school and classroom (including methods and materials).

- the evaluation of the effectiveness of the selected learning experiences, of the selected content, and of the integrated learning processes in attaining the aims and goals above. 1/

Curricula may be said to be "all of the planned experiences provided by a school, a level of education, or an educational system, to assist pupils in attaining designated learning outcomes to the best of their abilities". 2/ Curriculum planning, according to Saylor 3/ involves four operations, namely:

1. Curriculum determinants (pupils, social values, school structure, educational needs, functions and aims of the schools, the nature of knowledge, the process of learning) which guide;
2. Curriculum planners (professional educators at various operational levels supplemented by pupils and parents and outside resources, and influenced by a number of forces) who make;
3. Curriculum decisions (as to the characteristics of a good curriculum, the organisation and selection of curriculum content, the organisation of instruction groups, etc.) which result in;
4. Curriculum plans (of learning opportunities provided by the school or system, arrangements for the organisation of curricula and instruction for learning resources and for special learning experiences).

Figure 1. Curriculum process model (after Wheeler)



1/ Wheeler, D. K., Curriculum process, University of London Press, London, 1967, p. 30.

2/ Neagley, R. L. and Evans, D. N., Handbook for effective curriculum development, Prentice Hall, N.J., 1967, p. 2.

3/ Saylor, Galen, Curriculum planning for modern schools, Holt, Rinehart and Winston, N.Y., 1966, p. 7.

1. The nature of curricula

In talking about curricula, it may be necessary to distinguish between two distinct types from the outset. There are (a) those curricula which deal with the general problem of content and the distribution of subject matter in education (e. g. the primary school curriculum or secondary schools curricula); and (b) those which define in detail the content of the courses in the various subjects at the various educational levels (e. g. the English curriculum at the primary level, the Modern Maths curriculum at the secondary level). The second type, which may be called the curricula of specific subjects, usually forms part of the first type, in other words, the curricula of general education contain specific curricula. General education curricula relate to the general philosophy upon which educational systems are based and are therefore essentially determined by socio-economic and political factors. The curricula of specific subjects are primarily based on pedagogic considerations. 1/

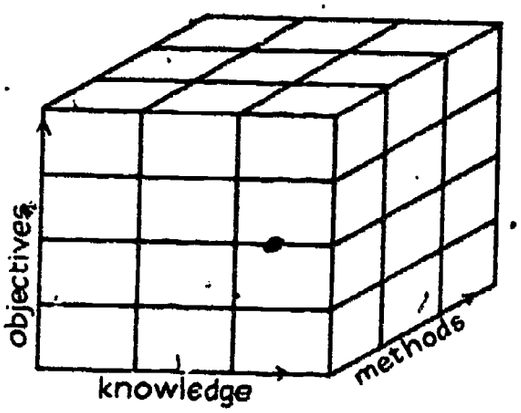
Certain curriculum theorists prefer to define curricula in terms of content only. 2/ This approach, though perfectly valid from the evaluation point of view, tends to take a narrow point of view of what goes on in a teaching-learning situation and the external factors that often play an important part in curriculum policy decisions. Content is a very important aspect of curriculum: It is, in fact, the most important from the learner's and the product point of view. The application of scientific methods to rationalise content-objectives into logically sequential and structurally valid teaching-learning units as they affect, and are effected by the nature of the subject matter on the one hand and the nature of the learner on the other, are fundamental to curriculum construction and to teaching. The problem has occupied pedagogues and curriculum planners for ages; it is becoming more and more important with the introduction of individual learning techniques, such as programmed instruction and a wider use of technology in education. However, content units have to be imparted to a learner through a medium; the teaching-learning has to be adapted to individual needs, abilities, aptitudes and interests. This is especially true of general education curricula.

1/ OECD, Curriculum improvement and educational development, OECD, Paris, 1966, p. 59.

2/ "A curriculum is a sequence of content units arranged in such a way that the learning of each unit may be accomplished as a single act, provided the capabilities described by specific prior units (in the sequence) have already been mastered by the learner". Gagné's definition, Perspectives of curriculum evaluation, Rand McNally & Co., Chicago, 1967, p. 23.

It is method (educational method or pedagogy) which brings together what is to be taught, who is to be taught and who teaches in a teaching-learning situation. 1/ In this respect, even the use of the most advanced teaching techniques, such as television programmes, teaching machines and programmed instruction textbooks become a part of 'the method' of instruction. Method takes into consideration the range, the influence and the implications of the subject matter for the learner; it also takes into account the internal and external factors that may be at play during a particular learning situation and attempts to bring all three - subject matter, learner and external conditions - into harmony for the best learning effect. The person who orchestrates the three factors during a learning situation is the teacher. With objectives, content and method as the constituent elements of curricula, Taylor 2/ built the following model of what curricula consist of and their dimensions, see Figure 2.

Figure 2.



1/ "This description of the curriculum as a bringing together of knowledge, methods and objectives may be more acceptable to the teacher than the 'learning experiences' model. It is perhaps a better representation of the interplay of forces associated with the curriculum in action". H. Taylor's remark, Hooper, R., The curriculum context, design and development, Oliver Boyd, London, 1971, pp. 160-161.

2/ Op. cit., p. 161. Taylor also claims that the model is dimensional in that each axis contains a range of items connected with it. Thus, the knowledge axis ranges from knowledge arising from simple elements of experience to formal knowledge, or knowledge of the disciplines; the method axis ranges from direct teaching to the point at which the pupil is his own teacher; and the objectives axis ranges from intellectual objectives such as the knowledge of some specific facts to self-knowledge including knowing what one knows and how it is known both to oneself and the world around him.

The contents and methods in curricula are often oriented towards particular areas which teachers and curriculum builders believe to be the best vehicles for the attainment of educational objectives. Policy decisions on curriculum orientation may be taken at different levels of the administrative hierarchy. In other cases, different schools or even different teachers may adopt or experiment with different types. This goes to show that within the broader view of education, curricula are not ends in themselves (as often happens in the planning and construction of specific single subjects), but tools towards the attainment of higher, more remote educational ends. Content and method viewed as a means towards the attainment of educational (as contrasted with immediate curriculum) aims acquire a deeper educational value and often interchange in influencing a child's experience. In other words, the method of instruction/education may become as important as the content. A good curriculum planner uses his judgment in determining first the basic mode of organisation of the content and then the element or elements appropriate to that mode for selecting and teaching the content in units of work:

2. Different orientations of curricula

Curricula may be oriented towards (a) subjects or disciplines; (b) the needs, interest and problems of the learner; (c) aspects of social life in which people engage; and (d) skills and knowledge used in performing a job. It is obvious that the first three tend to be most widely used in general education programmes; the fourth is particularly suited to vocational training, but even this has its place in general education as a number of basic skills like reading, writing and computation have to be acquired. It is difficult to arbitrate with any degree of certainty on which particular grouping is most efficacious since so much depends on the environment, the level of education, the nature of the child, the resources available for education. It is true to say, however, that on the whole, there has been a marked shift towards child-centred curricula at the primary and pre-primary levels and an equally marked shift away from subject-centred (as distinct from discipline-centred)1/ curricula in secondary education.

Subject-centred curricula are the most ancient and widely used type. School subjects are treated as ends in themselves or as a means of developing the child in a particular intellectual direction. Learning experiences are organised around each of the separate school subject or subject areas. A particular curriculum may be organised around a number of compulsory subjects, around

1/ There seems to be a marked preference for a return to discipline-oriented curricula in recent years. Hirst, P., "The logic of the curriculum"; Hooper, R., op. cit., pp. 232-250; Phenix, P. H., "The disciplines as curriculum content" in Passow, A.H., Curriculum Crossroads, Teachers' College Press, New York, 1962, p. 57; for a comparison between subject-centred and discipline-centred curricula, Neagley and Evans, op. cit., pp. 12-13.

a number of electives, or around a mixture of both. The broad fields (or fused) curriculum and the core curriculum are two of the most common types of curricula developed from the subject-oriented group. The former consists of grouping usual subjects into broader areas (e. g. grouping geography, history and civics into 'social studies'); this may involve the transfer of particular items of knowledge from one area or field to another (e. g. meteorology from geography to general science). The latter is a form of curriculum design in which one subject, or group of subjects, becomes the core around which all other school subjects are organised. Most schools of thought recognise the need to correlate as much as possible the work in different subjects in subject-centred curricula.

Child-oriented curricula depart from the principle that learning takes place best when the child is actively interested in what he is learning and when he is actively engaged in the learning process. Very often child-centred curricula are based on the principle of learning-by-doing (as against learning by listening and memorizing). The activity curriculum is the most widely used type because it can often be suitably adapted to subject-oriented curricula. The child-centred curriculum bases its content on the child's immediate interests. As a result, strict time-tables are the first to be eliminated; so are the subjects as they are normally pursued at school since children are often encouraged to read, study, learn and pursue any topics they are interested in. The integrated day curriculum and the experience curriculum aim to adapt learning situations to the immediate and spontaneous interests of pupils as they arise.

Society or community-oriented curricula utilise the life and conditions in the immediate environment and local community as the centre around which the educational programme is organised. Taking its origin from the theory that all worthwhile knowledge and experience emanate from society and social needs, the experiences and activities of pupils are thus planned to assist them in understanding and adjusting to the activities, culture, resources and needs of the community in which the pupils live or from which they come.

3. Other noted methods and techniques

While the method of the study or the pursuit of an investigation of a subject or a discipline acts as an influence in shaping the personality and mental processes of the student - an aspect long known to educators but quite lost sight of in the drive for instruction and the accumulation of mere information - several noted educational techniques have been developed from time to time with the specific object of influencing educational and personal growth in children. The Montessori method, with its graded and well-organised programmed and didactic materials, is both a method and a curriculum. The 'play-way' is another form of child-centred programme. The 'project method' launched by Dewey and developed by Kilpatrick, can be looked upon as a community-centred

problem-solving technique. 'Centres of interest' are quite widely used in schools with subject-centred curricula. In actual fact, such new methods as programmed learning, discovery and creativity methods and team-teaching can be used with any curriculum type. Other approaches deal with the organisation of the content. Thus, a subject may be organised on the basis of themes, topics, strands, problems, events, places, chronology, logical order, psychological order, sequential development, or the structure of the discipline that constitutes the subject field. These show that the type of curriculum to be used and the methods and approaches play an important part in curriculum orientation and curriculum construction. Like content, curriculum types and methods often emanate directly from educational aims or educational theories underlying educational systems.

4. Differentiated curricula

Generally speaking, the classroom teacher is only directly concerned with the imparting of a particular curriculum or course of studies to the pupils in his class. His primary duty is to organise his curriculum and his class in the best possible manner for the most effective learning to take place. But as one mounts the organisational and administrative ladder and includes more heterogeneous groups of pupils in his sight, then the need for different school organisations to suit different types of pupils or different curricula will invariably arise. Many writers today differentiate between the curricula of grammar schools (or grammar school education) and the curricula of general secondary or secondary modern schools. Different techniques, different content and different approaches to the content are used in each case. When these different curriculum types and curricula are provided in the same school, the pupils are usually 'streamed' in different groupings.

Special programmes are needed for special children. These include the mentally and physically handicapped, the maladjusted and the retarded. The education of gifted pupils is as important and in a situation where human resources are at a premium for economic and social progress, no educational system can afford to waste its best brains. Remedial courses are equally important to overcome the problem of school failures and in order to avoid long repetition of grades. Recently, a good deal of attention has been paid to 'terminal' or 'finishing' courses specially designed to enable a school leaver to bridge the gap between the course of general education and work or more advanced training.

Indeed, while in its widest sense, a curriculum plan may be considered as "the advance arrangement of learning opportunities for a particular population of learners", 1/ the higher one mounts the organisational and planning scale, the more complex the problem becomes. A curriculum plan originating at the national level will have to be adapted and adjusted both to local needs and to

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1/ Saylor, G., op. cit., p. 5.

different groups of learners. Curriculum planning and curriculum organisation take place at every level of the administrative hierarchy (school, local, regional, state, federal, etc.) and curriculum plans have to be drawn up for different types of pupils.

5. Implications and ramifications of curriculum influence

Curriculum construction and curriculum servicing have a bearing upon and are directly influenced by all aspects of educational policy, functions, objectives and techniques. Curriculum objectives are, perhaps, the most difficult to decide upon. As W.K. Wheeler states: "Whether the aims of the educational processes are stated as part of the curriculum process or as is more usual in isolation from it, they are of little use in the day-to-day learning situations in classroom or school";1/ so he suggests a three-step process of translation, namely: (i) ultimate goals must be stated; (ii) mediate goals derived; and (iii) proximate goals set up so that specific objectives can be planned at classroom level.

Curriculum policies are largely determined by (a) the educational theory of the system; (b) the socio-cultural milieu and ideals; (c) the nature of human knowledge and skills involved. As such, curriculum decisions at the highest level are often political decisions. At the same time, it must be realised that there are areas where political decisions have to be made in the light of rational and scientific findings. Curricula in fact, especially curricula of general education are, according to Saylor 2/ conditioned by:

- The fundamental beliefs, values and moral principles of society;
- the moves, traditions, expectations and value patterns of the citizens of a school community;
- the philosophy, points of view and recommendations on education of pertinent professional, civic and patriotic organisations and of leading authorities and officials in the field of education;
- social, economic and political conditions;
- the home and family situation of pupils;
- the legal mandates and requirements of superior agencies and admission requirements of higher educational institutions;

1/ Ultimate goals are defined by Wheeler as "the expected outcomes expressed as patterns or categories of behaviour; mediate goals as the patterns of behaviour at given stages over the educational period; and proximate goals as the most specific statements of intended behavioural outcome." Wheeler, W.K., op. cit., pp. 31-32.

2/ Saylor, G., op. cit., pp. 102-119.

- the psychology and sociology of cultural change (e. g. the acceleration of population growth, technical and scientific advancement, the expansion of knowledge, specialisation and power élites, new modes of communication, occupational patterns and employment, and alienation of self).

The implementation and support of curricular decisions and of curricular programmes in schools involves a great deal of administrative, organisational and planning decisions. The curriculum, in fact, affects the whole educational system and its development is constrained by it. These include:

School organisation

One of the principal fields where mutual and reciprocal influences affect curriculum is in the sphere of school organisation.

The levels of education, i. e. their division into pre-primary, primary, lower secondary, upper secondary, terminal, Sixth Form or Junior College and at university level, bachelorship, mastership and doctorate, not to mention the various levels of technical education, are largely determined by curriculum divisions or vice-versa.

The division of a school's course into grades is another area of influence.

The curriculum also influences and is influenced by the type of student classification in use. Streaming, mixed ability classes, setting, largely determine the type of curricula in use. Promotions, repeatings and student flows in general are a result of curriculum practices.

School organisation for curriculum needs affects the scheduling and time-table allocations. The selection of subjects or courses by the students where these are allowed, demands careful time-tabling. In secondary schools, time-tables have to take into consideration the balance between subjects, the needs of the subjects pursued, teacher working loads, the movement of pupils from one sector of the school to another, provision for extra-curricular activities. In primary schools, the time-table often provides educational, psychological and pedagogical challenges.

Counselling, educational guidance and the keeping of individual school record cards are part and parcel of modern curriculum activity. This entails the appointment of suitable staff, the constant application and review of evaluations of students' progress, storage space.

Delivery formats and teaching aids

The media for the imparting of the subject matter of education are crucial from the curriculum point of view.

1. The traditional and most widely used medium of education is the class (or subject) teacher. Teachers have to be selected, trained, kept au courant of curriculum needs, supplied with teaching materials. The selection and training of teachers has at all times been given great importance in the organisation of education, even though, under stress and duress, the standards of their recruitment, training, conditions of service and retraining may leave much to be desired.

Pupil-teacher ratios, ideally a curriculum issue, may often be determined by the availability of teaching personnel. One of the most important requisites of curriculum implementation is a regular and steady flow of teachers to teach the necessary subjects or subject matter. This also entails sufficient places and adequate training procedures in suitably staffed training institutions.

2. Modern technology has provided ways and means by which teaching can be facilitated, more widely propagated and/or individualised to a greater degree than it can be done by classroom teachers. In a number of instances, the use of modern technology in teaching can overcome the lack of teaching personnel and other resources. Teaching can, in fact, be carried out by correspondence, by records, by tape, by teaching machines, by film and filmstrip, by radio and television. In a number of cases, a combination of two or more media may be used. Each medium or group of media, has its special advantages and disadvantages which have to be carefully considered before schemes using these new techniques are launched. Each medium, or group of media, influences, and is influenced by the type and content of curriculum which is going to be taught through them. In whichever way these media are used, they require the use of experts and specialist teachers to build the programmes, technicians and other specialised personnel to deliver and maintain the services, other trained personnel to check on the individual and global progress being achieved.

3. The slate, the abacus, chalk and the blackboard are among the time-honoured and most widely used teaching aids even though there is a movement away from their use in modern education. Textbooks are important aids, too and their compilation, printing and delivery to schools form an important industry in its own right. Modern education has become more sophisticated and teaching aids of all kinds from charts to specimens, from films to flannelgraphs and overhead projectors are being continually created and produced. Teachers' training invariably includes the effective use of teaching aids in education; many teachers are also encouraged to create and make their own teaching aids. 'Media centres' are often found in schools, or among groups of schools, for this purpose. Films, filmstrips, charts, diagrams, models, tape recordings are among the most widely used teaching aids and are always in demand. Media centres can help immensely in storing, reproducing and making teaching aids available to teachers.

4. The school library is also becoming more widely used as a teaching aid. As methods of instruction become more child-centred and as the level of literacy among the population rises, the school library invariably becomes more fully integrated with normal classroom studies. The school library of today contains films, filmstrips, tape recordings and records besides books. Very often, the school library has connections with larger and better equipped public libraries outside the school; it also feeds and supports class libraries.

The quantity and the cost of teaching aids are no sure indication of the quality of teaching and learning: it is the use to which teaching aids are put which is the determining factor. It is true to say, nevertheless, that in modern education, there is a marked shift from 'chalk and talk' to a wider use of multi-sensory teaching media and aids.

Facilities and equipment

The equipment and building of schools are largely determined by who is going to use them and how, i. e. by the nature of the learners and by the needs of the curriculum. The teaching of science demands science laboratories and scientific equipment. Technical subjects demand workshops and machines. Language laboratories are becoming more widely used. In the same way, the curriculum determines the earmarking and allocation of school space. Gymnasia, children's space for recreational purposes, storage space, theatres and assembly halls, teachers' rooms are directly connected with curricular needs. The layout and the aesthetics of the school influences the pupils as well as the learning process.

Costs

All the items mentioned above cost money. Capital and recurrent expenditures are involved in the building and equipment of schools, in the salaries of school staff, in teaching materials and aids, in school requisites and school maintenance. Another substantial amount of money is spent on the training and retraining of teachers, on administrative expenses and in supporting services. Perhaps, the biggest constraint on curriculum development (though not necessarily on the quality of education) is to be found in the field of the supporting service. It is noticed, for example, that in many countries the revision of textbooks and curricula, the supply of libraries and teaching aids and similar curricular needs cannot be readily provided because they are given a low priority within a restricted budgetary allocation. Philip Coombs states that costs are an indicator of the efficiency of an educational system. 1/ One tends to be more qualificative and to add that how and where moneys are spent in education are indicators of efficiency. Be it as it may, making the best use of the financial resources available in the interests of greater educational efficiency and better teaching is a wise investment.

Management

The orchestration of all factors involved in the supervision of curricula in schools and of the services connected with curriculum needs requires a substantial amount of administrative work and good management at every level. Good management involves the setting up of the suitable organisations and channels of communication for curriculum development bearing in mind the criteria of economy, efficiency and effectiveness. Sound policy decisions can best be made after careful evaluations. A system of evaluation of curricula, internally and externally, has to be set up. Information for evaluation purposes depends, in turn, on a good feedback system. In the process of keeping the schools working well, qualitative policies in curriculum decisions have to be translated

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1/ Coombs, P. H., The world educational crisis - a systems analysis, Oxford University Press, 1968, p. 11.

into quantitative means. As we shall see in greater detail later on, the qualitative and quantitative aspects of curriculum needs form two separate features of curriculum service; each of them rests on a substantial administrative organisation. At the same time, the qualitative and the quantitative needs of curriculum have an important bearing on each other and the management process entails the translation of one in terms of the other and the careful linking of the two into one efficient service. That curriculum development forms an important part of educational management is widely recognised 1/ and a great deal of thought is being given to the problem. 2/

6. A framework for curriculum design

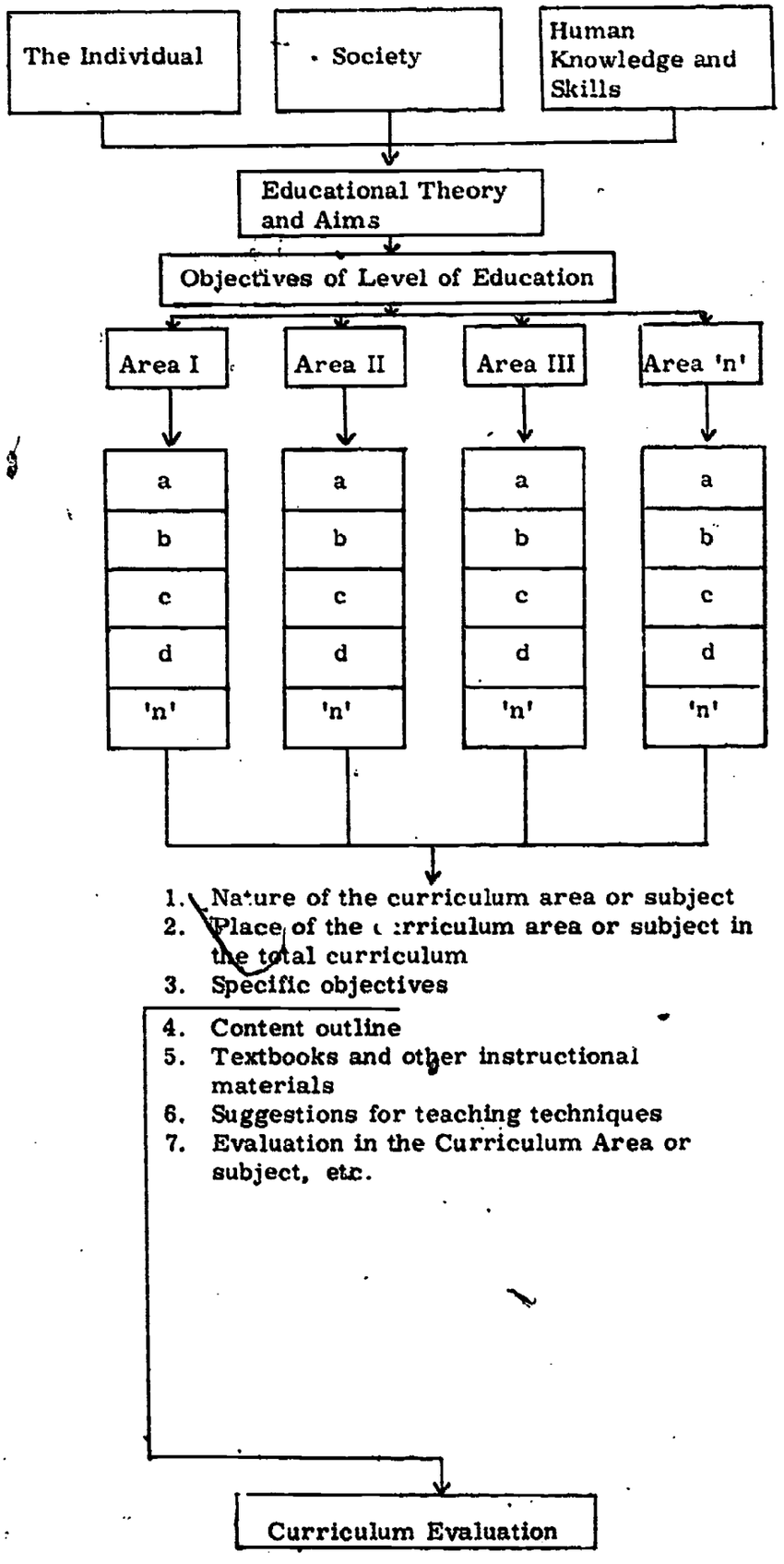
To sum up, the various processes entailed in the curriculum process and in the design and construction of curricula may be graphically represented as follows (see Figure 3).

1/ "Curriculum reconstruction and development programmes within an educational system form a component of the large process of management... The detailed specifications of educational objectives within the framework of national and international policy... and the design and planning of sequences for learning (instructional procedures, guidelines, etc.) form the beginning stages of curriculum development. The allocation of resources, communicating the plans and specifications to the execution levels, assisting, supervising and guiding, form another stage of such a programme of work. Assessment and evaluation of the execution is the other stage. In this way, policy and resources are harmonised and directed and their interaction in execution leads to the fruition of the programme of work". Jinpala, Alles (Unesco), Meeting of Experts on the Curriculum of General Education, Moscow, 16-23 January 1968, Annex D, Unesco, Paris, 1968 (ED/CS/4/11), p. 5.

2/ This model is adapted after H. R. Dave's in Unesco, op. cit., Annex C, p. 3. Certain items left out (i. e. curriculum research and curriculum revision) will be dealt with more fully later on.

Figure 3.

1. Foundations of Curricula
2. Ultimate Goals
3. Mediate Goals
4. Proximate Goals (Selection of Curriculum Areas)
5. Organisation of Programme
   (a) Time allocation
   (b) Resources, aids, etc.
   (c) Approaches to instruction
   (d) Facilities and equipment
   (e) Pupil classification
   (f) Costs/costs analysis
   (g) Evaluation scheme/cost benefit/cost effect, etc.
6. Outline of Course
7. Evaluation



II. CURRICULUM DEVELOPMENT THEORY AND CURRICULUM DEVELOPMENT PLANNING

Many of the problems concerning curriculum theory and curriculum practice in the world today are directly the result of and connected with pressures that are being brought to bear upon educational systems everywhere and upon the concept of education as we know it. The most important of these pressures are:

The explosion of school population

The rate at which educational systems are expanding horizontally (i.e. by sheer new enrolments) and vertically (i.e. by longer school attendance of pupils) is one of the most spectacular educational phenomena of recent times. The demand for more education has been steadily rising over the past twenty-five years or so and there is little sign that it is going to flag. Apart from the popular demand for education, governments and politicians move from one educational target to another, all of which demand greater educational expansion. Many writers point to the limits to which educational expenditures have been and can be stretched to finance this expansion. In any case, as Philip Coombs points out, 1/ these expenditures cannot go on increasing unlimitedly. Expenditures on curricula and the application of cost-effect and cost-benefit analyses have given rise to some conflict among planners of different disciplines. Educational expansion places great pressure on curriculum needs; unless curricula are revised and adapted to new situations, the quality of education suffers.

The explosion of knowledge

Just as dramatic and more far-reaching in its implications for the content of education and of curricula has been the rate of increase in the field of human knowledge. Some writers point out that human knowledge has doubled in the last fifty years and will double again by the end of this decade. 2/ There have been fundamental changes in the basic theories and methodology of the old disciplines. Many old theories and notions have been rendered obsolete. New disciplines and new fields of theoretical and applied knowledge are being created. In education itself, there have been remarkable advances in the field of psychology, in the application of scientific techniques to the educational process, in the technology of education and in the application of the social sciences in order to rationalise it.

1/ Coombs, P. H., The world educational crisis - a systems analysis, Oxford University Press, 1968, pp. 125-137.

2/ Bebel, C. F., "The educational programme", Designing education for the future, No. 5, Morphet & Jessor, Denver, 1968, p. 20.

The knowledge explosion has not been matched by an equally rapid system of communication, diffusion and revision of subject matter. One must admit that there have been spectacular advances in the field of audio-visual communication, in the storage and retrieval of documents on micro-films and in computer-memories. But, by and large, education still uses the traditional techniques of oral communication and the dissemination of knowledge by the printed word. Textbooks quickly become outdated and cannot be as quickly revised 1/; teachers take time to absorb new knowledge and to change their notions of and approaches to particular changes in the theory and methods of a discipline.

Traditional educational and curricular concepts are continuously coming up for scrutiny and examination. More than ever before the question is being asked of what knowledge is most worth and most worth teaching 2/: the contribution of new information and knowledge agencies outside the formal school system is changing the whole concept of what education should provide the learner with. The accumulation of information is no longer rated highly in education. New concepts of the place of man in society of the nature of human values and of the ends of society itself are having a profound effect on educational theory and what should be taught in schools.

The explosion of expectations

Man seems to want more out of life now than he has ever done before, and the conviction that education can offer the means to a better life is greater and more widespread than ever before. The economies of many countries are built on consumer spending. This, too, has led to a greater demand for education everywhere. There are demands upon the educational system from the point of view of human rights and from the principle of equality of educational opportunities, from the point of view of individual and national economic needs, from the point of view of expanding social needs. Parents and governments expect higher yields from their investments in education; others demand it as a means to social reform. Individual or group expectations from education cannot always be harmonised with national expectations. This frequently gives rise to conflicts over the aims and purposes of education, over what schools should teach and do.

One of the most evident and direct results of these pressures has been the institution of educational planning. 3/ Planning - social, economic, educational - is both a feature and an integral part of the knowledge explosion. Educational planning is being developed in many countries either as

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1/ Note that it is often stated that a textbook or a research study, becomes outdated by the time it is printed, published and placed on the bookstalls for sale.

2/ Richmond, W.K., The school curriculum, Ch. 8, Methuen & Co., London, 1971, for a comment on this point.

3/ Unesco, Educational planning - a world survey of problems and prospects, Unesco, Paris, 1970, p. 9.

a means to resolve educational problems or as a part of a wider form of socio-economic plans. Educational planning has the potential for coping with the problem of reconciling the above-mentioned explosions on their own merit and with available resources, for obtaining more generous financial and other resources for educational needs, for controlling, guiding and directing the vast expansions that have taken and are still taking place. It can also help by the use of scientific techniques to clarify, delineate and resolve educational problems. Whether it has been able to encompass these problems, however, is another story and there are reasons to believe that in certain respects, it has not as yet been as successful as one would have expected.

One of the principal accusations levelled at educational planning in general in recent years has been the lack of comprehension of the value of quality in education. This has a direct bearing on curricula. There is a general concensus that educational planning has, up to now, paid little serious attention to the quality of the content and product of educational systems. 1/ As a result, education has tended to deteriorate in methods and techniques and is rapidly moving towards a veritable crisis. Some writers complain that education has been made a tool of manpower plans and has been taken over completely by manpower planning 2/; others maintain that even where qualitative aspects have been taken into consideration, educational planning has merely tackled the 'externals' of the problem but not the roots. 3/ The evaluation and planning of education by statistical and mathematical methods alone only solves the problem in part and certain writers point to an obsession with statistics as one of the faults in the techniques of many planners. 4/ Short-term and ad hoc measures without clear long-term views do not provide lasting cures.

That the failure of educational planning to get to the roots of the educational problem has been largely due to its failure to tackle curriculum problems effectively is becoming more widely realised. An IIEP seminar on the qualitative aspects of educational planning has called for a change of strategy from qualitative to quantitative planning 5/; while a Unesco publication on a survey of

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1/ Coombs, P. H., "What is educational planning", Fundamentals of educational planning No. 1, Unesco/IIEP, 1970, p. 34.

2/ Anderson, C. A., "The social context of educational planning", Fundamentals of educational planning No. 5, Unesco/IIEP, 1967, p. 34.

3/ Wynn, Ira J., "Educational planning and 'the system': myth and reality", Comparative education review, October 1969, pp. 343-350.

4/ Coombs, P. H., The world educational crisis - a systems analysis, pp. 104-105; Kirst, M. W. and Decker, W. F., "An analysis of curriculum policy-making", Review of educational research, Vol. 41, No. 5, December 1971, pp. 480-481.

5/ Beeby, C., (ed.), The qualitative aspects of educational planning, Unesco/IIEP, 1969, p. 15.

world problems and prospects of educational planning has urged all countries to pay greater emphasis to the innovation of structures, content and methods in education. 1/ When educational systems fall behind the changes that have taken place in the outside world - and it seems that the principal fault in the progress of education as a whole and of curriculum needs in particular has been the widening of the lag between what actually goes on in schools and what is needed of them, leading to a veritable time gap - innovation becomes an urgent need.

1. Innovation, change and development

The innovation of curricula arises from the need to revise and update their (or the educational) content and methods and to bring them into line with current needs. These include the changes that have taken place in the field of knowledge, in the field of educational theory and teaching method, in the learning attitudes of the pupils, in the structure of the school system, in the aims and objectives of education, in the socio-economic ends of society and in the place-value of the subject within the educational experience. Curriculum innovation may take place in the content and its arrangement, in the method of instruction or delivery including pupil groupings, in the media and aids used or in the balance of the subject matter vis-à-vis other curricular needs.

In actual fact, the innovation of curricula is not altogether new to education, 2/ and teachers, headmasters and inspectors have invariably acted as agents of innovation within their sphere of influence at all times. There has also been a marked interest in curriculum innovation all around in many countries and one writer 3/ points out that the focus of change in educational practice in the last decade has been the curriculum. Curriculum theory, though still in its infancy, has made considerable progress.

However innovation, to be effective, has to be directed. In other words, it has to be planned, evaluated and implemented from the top. The need to bring educational systems up-to-date and to keep them abreast of the times makes purposeful and directed innovation an imperative duty

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1/ Unesco, op. cit., p. 11.

2/ "We understanding innovation to mean those attempts at change in an educational system which are consciously and purposefully directed with the aims of improving the present system. Innovation is not necessarily something new, but it is something better and can be demonstrated as such". Centre for Educational Research and Innovation (OECD), The management of innovation in education - Report on a Workshop held at St. John's College, Cambridge, June 25 to July 5, 1969, OECD, Paris, 1971, p. 13.

3/ Gagné, R., "Curriculum research and the promotion of learning", op. cit., p. 19.

of the administrator. Curriculum innovation, to be successful, must transcend the petty changes that take place in classroom situations through single, unconnected interventions by teachers, headmasters and inspectors, important as these may be in their own way, and be organised in such a manner as to be comprehensive and well timed. In other words, innovation cannot be left to chance; it must be planned. 1/

Two important points have to pointed out from the outset. Any innovation, and this counts for curriculum innovation as well, acts like a pebble thrown on a smooth surface of water: it creates a chain reaction which ripples and widens out to reach the outermost parts and to affect the whole system, even to the point of generating a countercurrent or backlash in the long run. Not all innovatory actions have taken or take full account of the implications created for the whole system especially where the innovations were partial and covered only a minor aspect of the curriculum. Innovations tend to meet resistance - resistance from teachers, resistance from publishers, resistance from financial agencies, etc. Unless all aspects and implications of an innovation are carefully considered, evaluated and accounted, the planning procedure has not been complete. Many an innovation has failed, achieved only a temporary success or caused more harm than good in the long run because of the failure on the part of the planner to take into consideration the human as well as the quantitative aspects of the innovation.

Secondly, with regards to education, an innovation that is static, ad hoc and non self-corrective and self-innovatory solves the educational problem only partially and tends to become itself quickly outdated. For the essential problem of education today is not merely to fill in gaps as and where they are identified. Education is working in a world that is continually changing; it is working with change and for change. Change has become the most durable, pervasive and prominent feature of modern life. The problem of education is not only that it must keep abreast of the changes taking place all around it; it is also that it must prepare people for a life of change. The task of

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1/ The St. John's College, Cambridge, Workshop on the Management of Innovation in Education notes three phases in the history of educational innovations: (a) the individual activities of the pioneer; (b) co-operation between the like-minded; (c) the present post-war movement for innovation in education, firstly as a pedagogic desirability then becoming a social necessity compelling a systematic approach to educational change, CERI, op. cit., p. 16. These three phases may be taken as indicators of the state of an educational system, or its administrators, in accepting educational (including curricular) innovations.

education has become that of teaching man how to cope with his environment in a world of change; it must aim to train him to understand, adapt himself to, cope with and control change. 1/ If it does not do so, it would be doing the greatest disservice to mankind and to itself.

Many of the educational and curricular lags and dysfunctions can be traced to the inability of educators and teachers - not to say administrators and planners - to understand this problem of change as an aim for education. Innovations devised and implemented without a knowledge and an awareness of the change-situation as it affects both the individual and the environment become quickly outdated and obsolete; time overtakes them. Of course, it is a very difficult task to assess and evaluate success in a changing situation, to forecast plan and budget in a world of change. The students of today will go out into the world five, ten or fifteen years hence, and education must prepare man for changes that will take place in the future, rather than changes that are taking place today.

But this is the stark mettle of education. Over and above the problem of which knowledge is most worth teaching and worth including in a curriculum, over and above short- or medium-term socio-economic aims based on targets planned by economists, over and above the imparting of traditional notions of culture, education should teach man how to cope with the change around him as it is envisaged to affect him when he goes out into the adult world. And, curriculum is the means for accomplishing this goal. Knowledge, socio-economic ends, even culture itself, become the tools in a curriculum aimed to enable man to understand the changes taking place around him. 2/ Innovation in education and in curricula acquires vitality and dynamism when it is looked upon as a means to further the mastery and control of change included in the education aim.

Innovation within change and changing according to new needs becomes 'development'. There are two processes involved in development. One is the principle of growth, largely linear and sequential, which takes place within certain widely definable and identifiable steps particular to the

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1/ This was the problem of John Dewey (v. "Education and democracy") and more recently, of Popper ("The open society"), also Toffler, Alvin, Future shock, Ch. 18, Bantan Books, New York, 1970.

2/ "Education for and within change" may be said to be the long-range aim and plan for education. Note in this connection, Russell A. Ackoff's remark in OECD Technical Reports, Efficiency in resource utilisation in education, OECD, Paris, 1969, pp. 339-340. "The third essential characteristic of planning is that it takes place in a dynamic environment... The reason that many organisations do not engage in long-range planning is that their executives do not really believe that the consequences of doing nothing are undesirable. Lacking long-range plans, administrators are obliged to cope with so many short-run crises that they have no time left for the long-range planning which could prevent such crises in the future".

nature of the object or species. The second is that growth and development which take place as a result of the action and interaction of the different aspects of the object with the outside environment. This type of development also follows certain laws, but is less predictable and intensely personal. Curriculum may be said to follow both principles. There exist definite steps in its construction, design and growth, as we have seen in 'I'. There is also that development in curriculum which emanates from the action and reaction of school practice and learning with the outside environment and which constantly adapts itself to changing needs. The laws that bind developmental curricula with student needs and the exigencies of the world of change outside may be less perfectly known than the laws of curriculum construction or the laws of innovation. This is, however, the type of development that is required of curricula and curriculum design in the present day.

A good curriculum, according to the above rationale, is therefore one which (a) is firmly based in an educational theory that takes its inspiration from the best concepts of the place and value of change in man, in society and in education itself; (b) is open to, and has built-in features for adaptation, evaluation, self-correction and innovation according to changing needs; and (c) is aware of its implications on the rest of the educational system both qualitatively and quantitatively.

2. The principle of self-correction

Curricula which do not have built-in systems for self-correction and adaptation become rigid and stale and tend to defeat the spirit of innovation and change. Self-correction in curricula is of two types. On the one hand, there is the need to adapt curricula to individual or group needs; on the other, curricula must contain mechanisms for updating and revision in point of time. Modern education, working with large masses of pupils and trying to equate educational opportunities as much as possible, has to deal with and cater for a wide range of pupil abilities, interest and aptitudes. There are special categories of children to be catered for. Where curricula are devised in a standard and normative way, special organisational and grouping techniques have to be devised to enable pupils of different abilities to move through the grades. In less structured systems, different methods and approaches are used to suit different children. 1/

The content of curricula has to be continually revised and updated to keep abreast with the development of knowledge and with the needs of the outside world. Methods of instruction and teaching aids are continually being improved and they affect curricular practice, too. Unless there

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1/ "In curriculum planning, it is necessary for education to have information about each individual child for whom schooling is planned, but they also need broad generalisations and concepts about children and youth. Curriculum planning cannot be provincial although it should be individual". Saylor, G., op. cit., p. 55.

is a mechanism which helps to align the curricula of schools with progress in the field of knowledge and the needs of the outside world, the gap between school and the outside world is bound to increase. Nor can revisions and updating take place when the crisis point is reached and on an ad hoc basis. In a situation of continuous change, the self-corrective mechanism of curricula must be continuous, too.

The problem of self-correction of curricula devolves around the type of organisation and mechanism that exists within an educational system, and, more particularly, its administration for the purpose. While, the curriculum must be so designed as to allow or provide for necessary changes at the local level as well as in time, very much depends or the ability and proficiency of the teachers, on the sensitivity and alertness of headmasters, inspectors and superintendents, on the type of curriculum planning organisation that exists. While there is obvious need to decentralise in curriculum development in order to obtain quicker results in the correction and alignment of curricula to local and particular needs, delegation of authority depends upon the degree of responsibility which the lower echelons are ready to assume, on the initiative they are ready to show and on their proficiency in the task. At the same time, changes, innovations and adaptations must be monitored, evaluated and where necessary, helped and corrected. This can best be carried out where, besides the teachers and field workers, there exists a permanent body to look after and aid curriculum development and curriculum developments. 1/

Curriculum innovation and curriculum change, seen as a form of correction within a wider field of curriculum development, come about as a result of the awareness that existing practices are not yielding the desired results. We call this awareness evaluation or the result of evaluation. But, as we shall see later on, evaluation has to be scientific and purposeful if it is to lead to the implementation of the right innovations, i.e. the right corrections. Evaluation is, thus, fundamental to the process of self-correction. When it takes place under conditions of continuous and developmental change, it becomes a continuous process itself - a procedure which continually assesses the efficiency of the system and which diagnoses areas which need correction and updating.

3. The principle of participation

It is possible to force an innovation or a change of curriculum upon a school system but this does not ensure that the desired results will be achieved or that the innovation will be widely and willingly accepted. The situation tends to become even more difficult when innovation and change are going to be a continuous process and self-corrective. In the circumstances, it is necessary that all those

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1/ CERI, op. cit., pp. 52-54. Note especially the principle of 'circular innovation' and 'rolling reform' of Swedish schools.

involved in any way in the innovation process are made to feel that they are actively participating, contributing to and willingly involved in the innovation process. In this connection, the persons involved include teachers, head teachers, inspectors, superintendents, students, parents as well as other bodies. In the long run, it is the teachers and the head teachers who, as the persons in the forefront of the teaching process, will determine the degree of success which an innovation will achieve. It is they who will be most directly involved if curriculum change is to be seen as a form of continuous development requiring self-corrective measures. The parents and the students will have to be prepared to accept the changes and 'change'.

The principle of participation, thus, involves a certain amount of decentralisation and delegation of power and of authority in decision-taking. 1/ Decentralisation in education depends upon (a) a well-trained staff who are able to understand the problem, to assume responsibility, to show initiative and to co-operate in change, and (b) a directing authority which manages the whole development, aids the field workers where necessary and constantly keeps them informed of the results being achieved and which is ready to delegate appropriate authority.

The principle of participation by all levels, each according to its own ability, in the implementation of innovations is widely recognised but not as quickly put to use. Provided there is a clear notion of what each level is expected to do, participation in curriculum development helps in two ways. The parties become more directly involved and feel they are themselves innovatory. In this way, they feel they are themselves contributing to the decision-making process. The second important point is that curriculum innovation and curriculum development, indeed, the principle of self-correction and evaluation, depend upon a good feedback of information to support them.

Feedback is a built-in aspect of the evaluation procedures and a preliminary part of the system. The nature of the information and the data that is to be fed back to the evaluating authorities depend on what is going to be evaluated. In a situation of curriculum development and of continuous change, there is need to have a continuous flow of information covering all aspects of curriculum and education practices in order to watch on developments and to take quick action where necessary. The feedback system, therefore, has to be well-organised, regular, continuous, accurate and reliable. Subjective and objective data may be necessary. The involvement of as many interested parties as possible in the feedback system becomes itself another form of participation in curriculum development. Participation in curriculum development means involvement by persons directly concerned and interested in the work of the schools, in the initiation of policies, in the decision-taking (by consultation) as well as in the feedback of information.

1/ St. John's College, Cambridge, Workshop on the Management of Innovation in Education, op. cit., p. 17, points out that it is not necessarily the degree of centralisation or decentralisation but rather the degree of authoritarianism which might explain to some extent the openness of different systems to innovation.

4. The principle of pre-testing

The construction of a new curriculum, the introduction of a new aspect of teaching method and technique, the process of implementing an innovation are tasks which require careful study and planning. The efficiency of the programme, its impact on the schools, the quickness of delivery and the consideration of all details help to avoid bottlenecks, avoidable corrections and lack of support. The pre-testing of curricular innovations is widely recognised. Attention should be paid to the evaluation procedures for these are not sufficiently well-developed to provide a rough-and-ready indicator of the efficiency or otherwise of a new curriculum plan. The testing of curricular innovations before their final implementation leads to necessary alterations, corrections and adaptations before the final draft, (which often involves heavy expenditures) and such things as the printing and diffusion of teachers' guides and textbooks, the production in bulk of films or filmstrips, etc., are produced and diffused on a wide scale.

The launching of a new curriculum plan, its timing, organisation and diffusion forms a formidable exercise in its own right which requires careful planning and preparation. Care has to be taken that no step is to be left out. These include money, personnel, materials and time. PERT techniques help to synchronise the various aspects involved in implementing a curriculum innovation from the design of the curriculum project to the ordering or production of the needed materials in as short a time and efficient a way as possible. 1/ Feasibility tests help among other things, to clarify under what conditions the implementation of a plan can best be carried out given stated resources. Pilot schemes and projects are widely used in pre-testing curriculum reforms and innovations. 2/

5. Evaluation

Evaluation is fundamental to the process of management in general. It is no less important in the management of education and of curricula. The problem of curriculum evaluation is one that is actively discussed both in curriculum theory and in curriculum practice. Another type of curriculum evaluation is that which deals with the evaluation of curriculum innovations. In terms of a theory of curriculum development in a state of continuous change, there is justification for adding a new type of evaluation, strictly speaking, the evaluation of curricula in a state of continuous development and change.

1/ Cook, Desmond L., Program evaluation and review technique - applications in education, U. S. Department of Health Education and Welfare, 1966, pp. 49-53.

2/ Banks, J., The curriculum development project in Britain, working paper submitted to the St. John's College, Cambridge, Workshop on the Management of Innovation in Education, (CERI/EI/69.04).

Evaluation in education is part and parcel of the testing and guarding of its efficiency. In a contribution to an IIEP seminar on Qualitative Aspects of Educational Planning, R. S. Peters 1/ made the distinction between the quality of the product and the quality of the process. These are equivalent to, what one may term, external and internal efficiency. Internal efficiency, or the quality of the process, is related to the efficiency of the programme vis-à-vis its stated goals or objectives; external efficiency or the quality of the product, relates to the efficiency of the goals or objectives to the outside world. The evaluation of curricula follows the same course: (a) there must be an evaluation of the processes or of internal efficiency; (b) there must also be an evaluation of the product or of external efficiency.

It is difficult to state which comes first. Both are equally important and interdependent. The quality of the process has an important bearing on the quality of the product and a change in the quality of the process has its effect on the quality of the product. The quality of the product may be said, however, to include the quality of the process and any changes in the quality of the product can only be effected by appropriate changes in the quality of the process. In curriculum terms, this means that there are two types of evaluation which are necessary for curriculum development: (a) the evaluation of the curriculum as such in practice (internal evaluation), i. e. whether the curriculum reaches the stated aims and goals, whether the processes are working in harmony, economically, efficiently, etc.; and (b) the evaluation of the aims of the curriculum in terms of wider educational aims or the needs of the student in the outside world. Internal evaluation is the work of curriculum experts and technicians; external evaluation is the business of the managers and planners of education.

Professor Benjamin Bloom identifies between formative and summative evaluation of curricula. His definitions come very near to internal and external efficiency evaluations but are more technically and objectively expressed. In his "Handbook on formative and summative evaluation of student learning", he defines formative evaluation as "the use of systematic evaluation in the process of curriculum construction, teaching and learning for the purpose of improving any of the three processes", while summative evaluation is "a judgment...made about the student, teacher or curriculum with regard to the effectiveness of learning or instruction, after learning or instruction has taken place". 2/ This type of evaluation which seems to eliminate those politically charged aspects which are often involved in an evaluation of curriculum aims vis-à-vis the aims of

1/ Peters, R. S., "The meaning of quality in education", Beeby, C. (ed.), op. cit., pp. 152-153.

2/ Bloom, B. S. et al, Handbook on formative and summative evaluation, McGraw Hill Book Co., New York, 1971, pp. 117-118.

education is most valuable for curriculum makers. Yet Bloom 1/ does not run away from the need to evaluate curricular objectives against the criteria of educational aims; in another publication, he affirms that "if education is to be open, public and examinable, the specifications for it must be explicit and either the process of education or the outcomes of the process must be examinable in relation to such specifications".

Daniel StuffleBeam's CIPP model of evaluation 2/ has been designed specifically to education and can be applied to a curriculum, to teaching methods or to assessing community development. It is based on four types of evaluation: Context, Input, Process and Product. The major objective of context evaluation is to define the environment where change is to occur, the environment's unmet needs and the problems underlying those needs; it thus provides information for the decision-maker on how to decide the setting to be served, the goals associated with meeting the needs and the objectives associated with solving problems. Input evaluation assists the decision-makers on how to utilise resources to meet goals and objectives; it involves identifying and assessing system capabilities, available strategies for meeting programme goals and available procedural designs for the strategies. Process evaluation detects and predicts defects in procedures and/or implementation during the implementation stage; it provides curriculum planners and administrators with a periodic feedback for the control and refinement of plans and procedures. Finally, product evaluation relates outcomes to objectives, to context and to input. It provides information on whether to continue, terminate, modify or re-focus a change activity and for linking the activity to other major phases of the change process.

It is obvious that where curriculum development is to keep pace with changing context, input and output needs, the evaluation of the objectives and of process has to be continuous as well and carried out as expertly and objectively as possible. At the same time, it is widely recognised that throughout curriculum policy-making, political conflict is generated by the existence of competing values concerning the proper basis for deciding what to teach. Thus, there arises the need for greater objectivity, reliability and validity in the evaluation processes and procedures. Hilda Taba hit the nail on the head when she wrote: "If curriculum development is to be rational and scientific rather than a rule of thumb procedure, the decision about the elements (of the curriculum) need to be made on the basis of some criteria... Scientific curriculum development needs to draw

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1/ Quotation by Kravetz, N., A research project on the evaluation of educational system outputs: an exploratory study, IIEP/RP/8, p. 18. He comments that both the process and the outcomes of education ought to be examinable.

2/ StuffleBeam, D. L., "Towards a science of educational evaluation", Educational technology, Vol. 8, No. 14, July 1968, pp. 5-12.

upon analyses of society and culture, studies of the learner and the learning process, and analyses of the nature of knowledge in order to determine the purposes of the school and the nature of its curriculum". 1/ The same sources, scientifically compiled and evaluated also provide the sources for the evaluation of curriculum objectives.

6. Emerging curriculum guides

Although the theory of curriculum development is still in its infancy, there is enough literature to enable the educational planner and the curriculum planner to form their own ideas on what curriculum development entails. Hereunder are three points of view which may be said to sum up the situation.

In a book entitled, The school curriculum, Kenneth Richmond 2/ proposes the following list of ten axioms which are, in essence, broad guidelines upon which curriculum development theories and curriculum development planning have moved in recent years. They are:

1. Management of conflict is a pre-condition for securing co-operation.
2. Since curriculum planning has to be related to the education system as a whole, it is necessary to determine the state of the system.
3. Curriculum planning needs to be carried out as a combined operation.
4. If it is to be effective, curriculum planning must be accompanied by appropriate learning materials.
5. In curriculum planning, it has to be borne in mind that the emphasis is gradually shifting from the teacher as instructor to the teacher as manager of learning situations.
6. In curriculum planning, the selection of objectives comes before the selection of content.
7. Continuous assessment and evaluation must be built into curriculum planning to ensure that it is self-correcting.
8. In any education system, the major forces of change stem from the outside.
9. The contemporary learning situation calls for a re-definition of the basic skills.
10. Curriculum planning, like education itself, is a continuous process.

In much the same vein, the OECD report of 1966 3/ pointed out that the main principles upon which the approach to curriculum construction should be based can be summed up as follows:

1/ Taba, Hilda, Curriculum development: theory and practice, Harcourt Brace & Co., New York, 1962, p. 10.

2/ Richmond, Kenneth, op. cit., pp. 33-40.

3/ OECD, "Curriculum improvement and educational development", op. cit., pp. 5-6.

- Curriculum development must be seen as an integral and continuing part of educational development and educational planning;
- a piece-meal approach to the several disciplines within the curriculum is no longer adequate and an overall approach to the problem of curriculum development is now needed;
- in consequence, ... countries should regard curriculum development as a continuous function which requires appropriate national permanent mechanisms to deal with it.

Finally, the 1968 Unesco report on the curriculum of general education 1/ laid down that curriculum development, viewed in the most general terms involves the following principal processes: Firstly, it involves a complex set of group decisions of a multi-disciplinary nature, including many value judgments (the decision being based on available evidence, studies, expert opinion, body of theory and learning research), the total complex of decisions leading ultimately to a specification of objectives and content for a particular curriculum or educational programme. Secondly, having regard to the availability of resources of men, materials and time, learning materials and learning procedures are desired to set the conditions under which fruitful learning experiences are made available to pupils (this stage often involves work of an artistic, creative and synthetic nature). Thirdly, quality control and feedback of evidence needs to be designed and elaborated to ensure that curriculum plans are being effectively realised.

1/ Unesco, "Report of the meeting of experts on the curriculum of general education", op. cit., p. 19.

III. OPENING UP THE EDUCATIONAL SYSTEM FOR CURRICULUM DEVELOPMENT

The installation and institutionalization of an educational strategy based on a system of continuous curriculum development and change is, in itself, a major innovation which involves the whole educational system and requires careful planning, good preparation and time. A definition of innovation has been given as "the (1) acceptance, (2) over time, (3) of some specific item - an idea or practice, (4) by individuals, groups or other adopting units linked, (5) to specific channels of communication, (6) to a social structure, and (7) to a given system of values or culture". 1/ In our case, item (3) is curriculum development and change; item (4) consists of the education personnel - teachers, headmasters, inspectors, superintendents, educational administrators and parents, students and all those directly concerned with the educational process; item (6) is the educational system; item (7) includes educational theory and practice. The specific channels of communication to which we shall now turn our particular attention, includes the new organisations and mechanisms that have to be set up in order to fultil the innovation and the changes that are or have to be brought about in the roles of bodies and personnel connected with the process.

Innovations can be implemented in different ways. Chin and Benne 2/ have made a particular study of how changes and innovations can be brought about in education with particular reference to their management and diffusion. They identified three sets of strategies that can be employed, namely:

1. Empirical-rational strategies based on the rational principle that "because the person (or group) is assumed to be rational and moved by self-interest, it is assumed that he or they will adapt the proposed change if it can be rationally justified and it can be shown by the proposer(s) that he or they will gain by the change". 3/ This group of strategies includes such practices as:

   (a) encouraging basic research and dissemination of knowledge through general education;

   (b) personnel selection and replacement strategies;

   (c) the introduction of systems analysts as staff and consultants;

1/ Kate, E. et al, "Traditions of research on the diffusion of innovations", American sociology review, No. 27, April 1963, p. 240.

2/ Chin, R. and Benne, K., "General strategies for effecting changes in human systems", Bennis, Benne and Chin: The planning of change, 2nd edition, Holt Rinehart and Wilson, New York, 1969, pp. 32-59.

3/ Ibid., p. 34.

(d) the promotion of applied research and linkage systems for diffusion of research results;

(e) using utopian thinking as a strategy of changing; and

(f) perceptual and conceptual reorganisation through the clarification of language.

2. Normative re-educative strategies consider that change in a practice or action "will occur only as the persons involved are brought to change their normative orientations to old patterns and develop commitments to new ones. Changes in normative orientations thus involve changes in attitudes, values, skills and significant relationships, not just changes in knowledge, information or intellectual rationales for action and practice". 1/ Approaches under this heading include: (a) improving the problem-solving capabilities of a system; and (b) releasing and fostering growth in the persons who make up the system to be changed through refresher/retraining courses and participation in policy-making.

3. Power-coercive approaches including non-violence strategies, the use of political institutions to achieve change and changing through the recomposition and manipulation of power elites where "the influence process involved is basically that of compliance of those with less power to the plans, directions and leadership of those with greater power". 2/

No single strategy can produce all the changes required by an educational system which wants to launch itself into and sustain itself in a system of continuous curriculum development without friction, tensions and inertia. No single strategy can be expected to suffice all the time. One would tend to think that the empirical-rational group offers the optimum strategies. This is certainly so from the long-term point of view. An educational system committed to and actively involved in curriculum development and change must, on its own initiative, be sensitive of the changes taking place outside it. It must also be sustained by continuous basic research, by the constant help of consultants and systems analysts, by the recruitment and appointment of the best experts and leaders available and by the rapid diffusion of information and research results among the workers in the field.

However, any educational system, even that of the smallest country, is a very complex organisation involving a wide range of personnel extended by geographical area, occupational categories, status and training, individual interests and age. For this reason, normative-re-educative strategies have to be widely used for innovation to spread in the desired direction. Teachers must feel they are an integral part of the innovatory process; training and retraining

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1/ Loc. cit.

2/ Loc. cit.

services must be made available. Lastly, but not least, although power-coercive methods, especially when carried to extremes, have been found to be the least productive of effective and long-lasting innovation and reform, there may also be need for them in certain instances and for certain measures, at least insofar as the legitimising of the necessary regulations and the authority to implement them are concerned. 1/

1. Curriculum research

The organisation, launching and diffusion of research and research findings are of cardinal value in the switching of an educational system from one that follows change to one that takes change into its stride. Clark and Guba 2/ have formulated very specific processes related to and necessary for change in educational practice following upon research. As Clark 3/ rightly but somewhat over optimistically, points out in a state of continuous curriculum development, "the educational research community will be the educational community and the route to educational progress will self-evidently be research and development". Research has to be developed, diffused and adopted.

The problem of research in curriculum development and in education in a state of continuous curriculum change is one of the most important aspects of modern educational needs. The case of its organisation in appropriate Curriculum Research and Development Centres was ably argued by Professor Bloom in a 1966 paper in the Journal of Educational Science and confirmed by the 1968 Unesco Meeting of Experts on Curriculum and the 1970 Gränna Seminar on Curriculum Development and Innovation. In his 1966 paper, 4/ Bloom pointed out that:

> "Curriculum change will increasingly require the combined efforts of many types of specialists if the organisation of curricula is to be adequate to the demands and pressures which give rise to them. A Centre for Curriculum Development and Educational Research would appear to be one means for insuring that new curricula will be more adequate than present ones. Such a centre, if properly organised, should ensure that the many problems

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1/ Hoyle, E., "How does the curriculum change?", Hooper, R. (ed.), op. cit., pp. 392-394.

2/ Clark, D. and Guba, D., "An examination of potential change roles in education", Seminar on innovation in planning school curricula, Ohio State University, Columbus, 1965, p. 35.

3/ Clark, D., "Educational research and development: the next decade", Designing education for the future - an eight state project no. 2, Morpher & Jessor, Denver, 1967, p. 175.

4/ Bloom, B. S., "The role of the educational sciences in curriculum development", International journal of educational science, Vol. 1, Appendix I, Pergamon Press, London, 1966, p. 7.

involved in curriculum development are systematically attacked and that evidence derived from specialists, research investigations and evaluation studies are properly treated in the different stages of curriculum development. It is likely that only through such a Centre can the different institutions, organisations and committees be fruitfully involved in creating and securing widespread adoption of new curriculum developments".

Among the functions of Curriculum Research and Development, Bloom included:

- the determination of curriculum objectives, including changes in the subject matter, the society, the students, the educational philosophy and the value system and the theory and principles of learning;
- the development of learning experiences, including the provision of learning materials, the development of syllabi and teachers' manuals, the in-service training of teachers; and
- the evaluation of the effectiveness of learning experiences.

Bloom seems to have had in mind the special circumstances of developing and/or small countries where educational research is not as yet fully developed and where the closest links need to be established between the schools and curriculum research, curriculum research and curriculum construction, curriculum construction and the curriculum implementation agencies, the curriculum implementation agencies and the schools. In fact, the 1966 Unesco Meeting of Experts on Curriculum noted that "the most effective curricula are now being developed by those nations fortunate enough to possess curriculum centres with appropriate teams of experts and recommended that Member States of Unesco be helped in the creation of national centres for curriculum development and research". 1/ Finally, the 1970 Gränna Seminar on Curriculum Development and Innovation repeated the Unesco experts recommendation and expected the following values to be gained from curriculum centres:

- improvement in the quality of learning;
- improvement of efficiency of instruction;
- modernisation of education;
- studies of the needs of special groups of learners;
- educational integration and sequence; and
- the utilisation of the results of educational research. 2/

The case may be argued for a separation of basic, long-term research in education in general (including curriculum problems) from applied operational research involved in the process of curriculum construction (including evaluation). This seems to be the case in a number of large

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1/ Unesco, "Meeting of experts on curriculum of general education", op. cit., pp. 16-17.

2/ IIEA, International seminar for advanced training in curriculum development and innovation, Appendix I, Gränna, Sweden, August 1970, pp. 3-5.

countries and where educational systems are firmly established. Thus, Hendrick Gideonse, the American, distinguishes between research, development and school operations and draws demarcation lines between the three operations. Research, he states, is knowledge-oriented and leads to a finding. Development is process-oriented and its output can be materials, techniques, processes and organisational formats which accomplish certain objectives specified in advance. School operations lead to the production of educational output. 1/ This has led Eskil Bjorklund to conclude that it is not easy to find rules of general validity governing the best methods for research institutes to co-operate with development work and practical application:

> "In an initial phase, when for example research activity is limited and methods and techniques for planning and development are undeveloped, it can be suitable for the institutes to take an active part in research projects with a marked element of planning and development... At the same time, it is obvious that development projects with few research features, having their centre of gravity in planning and development work, should not be carried out at a research institute but in the planning and production environment". 2/

2. Curriculum development

The distinction between research (i.e. empirical and long-term research) and curriculum development and construction is amplified operationally in a 1971 OECD publication entitled, "Educational technology - the design and implementation of learning systems". This publication recommends the creation of three levels of organisation within curriculum research and development which, in a way, bind together research, development and diffusion and respond to the geographical distribution of three levels of educational planning and administration as well.

At the highest levels, the publication recommends National Institutes for Planning and Innovation in Education, or "if such institutes already exist, to extend their mandate in the light of present changes and developments in society and education". 3/ The National Institutes will deal with qualitative as well as quantitative aspects of planning and innovation and their functions would include:

1/ Gideonse, H. D., The conditions for effective decision-making in educational research and development, Canada Council for Research in Education, 5 June 1968, quoted by Bjorkland, Eskil: Educational research and planning in Sweden, working paper submitted to the St. John's Cambridge Seminar, 1969, CERI/EI/69.13, p. 21.

2/ Bjorklund, E., op.cit., p. 23.

3/ Centre for educational research and innovation (CERI), Educational technology - the design of learning systems, OECD, 1971, p. 66.

- The promotion of basic long-term educational research where necessary;
- conducting and commissioning research and development and applications of learning materials and systems;
- co-ordinating evaluation and carrying out research work insofar as this is essential to its other functions;
- co-ordinating research and development carried out by other institutions;
- providing information and advice on educational reforms for the guidance of political decision-makers and educational administrators. 1/

At the regional or area levels, there would be Educational Development Institutes with the following functions:

- Undertaking curriculum programmes, i.e. design, development, prototype production and evaluation of learning systems;
- appropriate collaboration in marketing and distribution of learning systems;
- co-operation with schools and local education authorities to promote the implementation of learning systems;
- providing information, help and assistance to schools which participate in educational innovations (changes in school administration, ad hoc in-service training of teachers, school management advice, etc.);
- carrying out research and development appropriate to their functions.

While it is essential for Educational Development Institutes to establish a close link and co-operate with National Institutes on all matters of mutual concern, they should also co-operate, and inspire interaction with a variety of other institutions and social groups such as universities, teacher-training and research institutes which should be seen both as intellectual and human resources. 2/

Resource centres. If qualitative planning and the work of Educational Development Institutes are to be effective, the contribution that teachers and students can make must be utilised. For this reason, a third type of centre, namely a resource centre, is needed at the local level to serve one school or a small group of schools. The resource centre would, primarily, serve as a documentation centre with a library of books, films and materials of all kinds for use, evaluation and diffusion by teachers, but it can also usefully undertake such activities as:

- Acting as a contact agency with Educational Development Institutes;
- co-operating with local educational administration in the servicing functions of the school;
- receiving, storing, forwarding (within the school or schools) learning systems and information about them (including, one would add, evaluation);

1/ CERI, op. cit., p. 67.

2/ Loc. cit.

- assembling and forwarding to other institutions, especially the Educational Development Institutes, evaluative data;
- occasional production of learning materials (minor modifications, additional material, film/photo and slide laboratory, technical workroom, etc.); and
- in-service training within the school. 1/

The communication network of the system proposed would look something like Figure 4. 2/

The idea that curricular programmes (including design, prototype production and evaluation) are to be undertaken at the regional level, i.e. by Educational Development Institutes, is interesting and worth further comment. Although curricula have to be individualised as much as possible, although teachers and schools will have the duty to update, adapt, modify and in some cases even select and change their curricula, it is all the time becoming more and more difficult for curricula to be designed, developed and constructed at the school or local level. The nature of knowledge, the development of technology and progress in teaching theory and techniques almost demand the large-scale construction, production and development of curricula at the highest level of national authority where the expertise, research and resources are found at their best. Big curricular innovations, such as those launched by the Nuffield programme in the United Kingdom and others such as those developed by the N. E. A., Ford Foundation in the United States, point to this trend. This point is also important from the point of view of many small countries which cannot finance their own curricular projects or parts of them (such as textbooks, teaching materials and the production of educational soft-ware) but depend on other countries for the bulk of curricular research and curriculum designs. Educational offices and Educational Development Institutes at the regional level should see to it that they are equipped and staffed with a sufficient number of curriculum experts, evaluators and consultants to look after the needs of their area. These persons may be available in the head office, in the schools, in the universities and training colleges as well as outside the educational sphere as such.

An Educational Development Institute which can also serve as a documentation and evaluation centre should be established on a permanent basis separate from the normal administrative set-up though not necessarily outside it. Whether the specialists are permanently employed or whether they are engaged for particular purposes, such as for example drawn from their normal educational/teaching duties for a time, or whether one specialist is selected for each aspect of the curriculum problem or whether two or more aspects are covered by one expert is immaterial since

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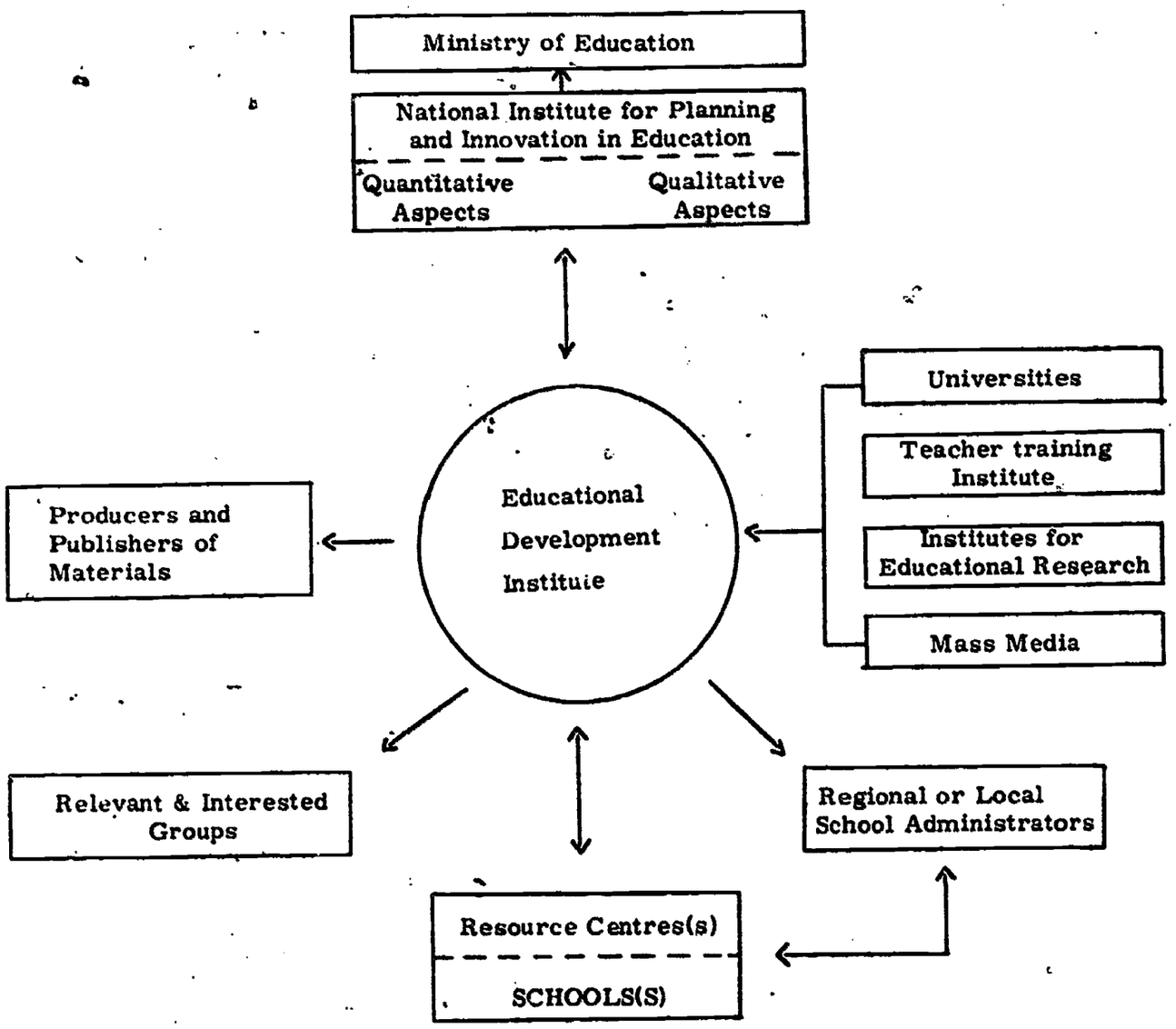
1/ CERI, op. cit., p. 69.

2/ Ibid., p. 68.

Figure 4.


Ministry of Education
National Institute for Planning and Innovation in Education
Quantitative Aspects
Qualitative Aspects
Universities
Teacher training Institute
Institutes for Educational Research
Mass Media
Educational Development Institute
Producers and Publishers of Materials
Relevant & Interested Groups
Regional or Local School Administrators
Resource Centres(s)
SCHOOLS(S)

this depends on the resources of the region. The construction of a good curriculum course, however, basically needs the following specialists:

A subject expert or subject experts to take care of the content of the curriculum project, the logic and philosophy of the discipline upon which it is based, the most recent and if possible envisaged future trends and developments, the sequential order of the material, to check that no important aspect has been left out, etc.

A teaching methods expert or experts who will ensure that the learning experiences are itemised according to good teaching methods and to devise the proper methodology including media and teaching aids. The teaching methods expert may also take the place or ask the help of an educational psychologist to place the content and the method, the media and the aids within the proper learning theories suitable for the age and ability of the learners.

Educationists, in the person of teachers, headmasters, inspectors, education lecturers and educational guidance officers to help in the construction of the curriculum, the aids, the syllabi, the teaching guides, etc. and to contribute by virtue of their experience and expertise to the solution of practical as well as educational problems.

Evaluators, concurrently with the construction of the curriculum, and usually under the guidance of an educational psychologist, in collaboration with teachers and educational guidance officers, evaluation procedures and techniques are organised.

3. The diffusion of curriculum innovations

The diffusion of the concept of curriculum development in an ever-changing situation is a major effort of a whole educational system and involves radical changes in the concepts and roles of teachers and educational leaders. For this reason, the problem will be left for the next chapter. A great deal of thought, however, is being given to the dynamics of the diffusion of innovations in education including curriculum innovations. The findings in the fields of the diffusion of innovations in management, businesses and industries can be applied to education. 1/ Two aspects need to be distinguished here: (a) the diffusion of the idea behind the innovation, and (b) the diffusion of the innovation itself. Even so, it must be understood that the diffusion of any innovation is bound to differ from country to country and even from innovation to innovation depending on a number of factors or a combination of them such as the strategies used, the manner in which the diffusion has been planned and organised, degrees and directions of resistance, the choice of support.

1/ Rogers, Everett, "How farm people accept new ideas", Iowa Agricultural Extension Services Special Report 15, 1955. Note Everett Rogers' classification of the steps of diffusion: viz (1) awareness; (2) interest; (3) evaluation; (4) trial; and (5) adoption or rejection.

In decentralised systems of education, the diffusion of an innovation is often synonymous and takes place concurrently with the diffusion of the idea. The decentralisation need not necessarily be in the administration but in such fields as the organisation of curricula, the recruitment and employment of teachers, the ordering and buying of teaching materials. 1/ In centralised systems, the implementation of an innovation without the necessary preparation by way of informing/retraining the teachers, applying the schools with necessary information, programmes, guides and materials may lead to serious difficulties. 2/ In both cases, the diffusion of a curricular innovation tends to depend upon (a) the training and/or retraining of the teachers (including informing them) and all those directly connected with the innovation; and (b) the organisation of the 'quantitative' needs of the innovation and the management/timing of their distribution. It will be seen that spreading the idea about the innovation tends to precede the actual implementation of the innovation and the rate at which the innovation diffuses depends, among other things, upon the organisation of the training and distribution programmes.

A useful method and one which is becoming more important in the updating of teachers in general and to prepare them for curriculum innovations in particular is the organisation of refresher or more appropriately, in-service training courses. Many curricular innovations require a reorientation of teachers' ideas and new notions of educational theories and techniques. They may involve a new concept in the treatment of the content or extra knowledge of the content itself. In many cases, new techniques have to be practised and learned. All these and other factors require that teachers be adequately prepared before an innovation is launched on a wide scale. Difficulties are bound to crop up and have to be envisaged; among these, distances from training centres, conditions of work and of training, motivations for enrolling in retraining programmes, have to be considered. The financial resources have to be found. Where retraining programmes are conducted on a voluntary basis, the innovation may not spread quickly; this does not mean, however, that compulsory retraining programmes necessarily achieve the desired, if quick, results. Very often the diffusion of an innovation depends upon the manner in which it 'catches' the teachers.

1/ Brickell, H., "The two local change strategies" and Lawson, D., "Changing the curriculum", Chapters III. 2 and III. 6 in Hooper, R. (ed.), op. cit., for the diffusion of innovations in decentralised systems of education.

2/ Take the case of the implementation of the curricular change in switching over to Modern Mathematics in France, for example, where after many years, the innovation has only reached a 60 per cent success.

Thus, points of resistance, points of support and also focal points which may either support or resist innovation become important in the management of an innovation and have to be studied. Strategies to deal with them have to be worked out. 1/

Points of resistance. Teachers, headmasters and teacher organisations may oppose an innovation for reasons ranging from the extra effort entailed in switching from well-practised and widely diffused techniques to non co-operation with the authorities for outside reasons. Old teachers may not be ready to accept innovations quickly or to understand their full implications. Parents may be aware of the need for reforms in the education of their children but may not take kindly to an innovation which may involve their children's immediate (usually examination or work) interests or extra expense. There may be pockets of resistance from within the administration itself, such as the finance department, the stores and equipment officer and other persons to whom the innovation may mean a change in work techniques or be interpreted as a judgment on the conduct of one's previous work. Groups with vested interests, such as examining bodies, employers of school leavers, teachers of higher grades may also oppose innovation for their own interests.

Resistance to innovation has to be overcome preferably before the innovation is implemented. Advance information and preparation for the innovation will give the opportunity for pockets of resistance to appear before the innovation is launched and for disagreements to be smoothed out. It will also give the chance for legitimate grievances to be redressed. Participation in the innovation process, including policy decisions, is another means by which resistance to change can be detected and controlled. A third method is conviction - the vindication of the idea that the innovation is necessary and needed - by practical demonstrations of the better results it yields. All in all, however, it is important that the innovation is accompanied by a public relations system which informs interested parties and which accepts and redresses legitimate objections.

Points of support. Although M. B. Miles 2/ tends to view the group rather than the individual, as the unit of change, an intelligent teacher chosen from among a group, suitably trained and given the responsibility of diffusing the innovation often proves a successful agent of diffusion in planned innovations. Where is is impossible to retrain large numbers of teachers quickly enough, a number of suitably qualified teachers may be selected and recruited and given a thorough training in the innovation; they would then return to their areas or schools and aid in the diffusion of the innovation

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1/ Owen, J., School-centred patterns of support and resistance, working paper submitted to the St. John's College, Cambridge, Seminar, 1969, CERI/EI/69.05; Bennis, Benne and Chin: Resistance, Chapter 9.

2/ Miles, M.B., "On temporary systems", Innovation in education, Teachers College, Colombia, 1964.

by the example they set, by the training of other teachers, by their new expertise and/or by any new authority invested in them. Such curriculum leaders may also help in the evaluation of innovations and in the re-drafting or revision of syllabi and schemes of work. 1/ Similarly, lighthouse schools may be selected, suitably staffed and equipped to launch an innovation in an area. They would serve as an example for other schools to follow, as centres for retraining and demonstration, for experimenting with and evaluating new programmes.

Both in the choice of curriculum leaders and in the selection of lighthouse schools, a strategy has to be developed. Sociometrics and social dynamics help in the selection of leaders among peer groups. Schools which are ready to accept and experiment with an innovation and to serve as leaders can be identified and/or established - care being taken that the school population is representative of the region and that the school does not use its position for ulterior motives. The posting of curriculum leaders and the siting of the schools have a bearing on the success of the diffusion of the innovation.

Focal points. Apart from teachers, headmaster 2/, inspectors 3/ and school superintendents 4/ are focal points in curriculum innovation whose authority has a bearing on whether an innovation is diffused or not, and whose experience and expertise are important in the formulation of objectives, in the development of curriculum plans and in suggestions as regards possible weaknesses and failures. The diffusion of educational and curricular innovations is usually taken for granted by educational authorities as a part of the normal duties and responsibilities of headmasters, inspectors and superintendents; as a result, sometimes not enough attention is paid to the need of consulting these officers, of asking for their opinions, judgments, criticisms and comments before

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1/ Saylor, Galen, op. cit., p. 498. He discusses the role of the curriculum leader in the following terms: (a) leading the curriculum planning process; (b) co-ordinating the efforts of all groups and individuals working on a curriculum problem; and (c) acting as a change agent for curriculum improvement.

2/ Hoyle, Eric, "How does curriculum change", op. cit., pp. 386-389 for a discussion of the role of headmasters in innovations.

3/ Birchenough, J., The contribution of the central inspectorate to innovation in education, working paper submitted to the St. John's College, Cambridge, Seminar, 1969, CERI/EI/69.06, for a discussion of the role of inspectors in innovation.

4/ Carlson, R.O., The adoption of educational innovations, pp. 10-11. With reference to the role of superintendents in innovation, he notes: "Though it is true that a school system as a whole accepts or rejects innovations, the school superintendent is at the focal point in the decision regarding innovations. Whether he convinces his staff or is convinced by them, the superintendent is in a position to make the final decision".

innovations are imposed upon them, and to the need of inviting them to participate in the formulation and evaluation of curriculum plans with all that they entail. While the selection, recruitment, qualifications and training of these officers is of the utmost importance in the nurturing and fostering of curriculum development and change in schools, it is worth noting that through conferences, seminars, workshops and similar meetings, headmasters, inspectors and superintendents, in separate groups or in mixed ones, can help a great deal in the drawing up, evaluation and implementation of curriculum plans, while they themselves are reaping the benefits of a refresher course in the innovation.

4. Orchestrating qualitative with quantitative planning

The design, construction, evaluation and re-adaptation of curricula, including the setting up and the maintenance of the curriculum services that go with them are only one aspect - the qualitative aspect - of curriculum planning and curriculum development. Curriculum development and curriculum practices in schools must be supported by an administrative and managerial machinery working with the curriculum planners both in the planning and in the implementation of the innovations after the curriculum plans have been approved. The orchestration of the qualitative with the quantitative aspects of a curricular innovation requires planning in terms of material needs and budgeting, as well as planning in terms of organising the channels of communication and of the services for supplying the schools with their needs.

Among the qualitative aspects of the reform, one must include such things as:

1. The organisation of the in-service/retraining programmes: their duration, timing, siting and conduct; the selection of the programme leaders and trainers; the effect the absence of teachers from the schools, if any, will have on normal schooling;
2. any changes envisaged in the normal curricula of initial training courses; the in-service/refresher training of training college lecturing staff;
3. the degree to which envisaged innovations will affect/alter normal working conditions in school;
4. the degree to which established pupil-teacher, teacher-teacher, teacher-superior relationships will be affected by the innovation and the organisation of suitable remedies;
5. the short-term impact of the innovation on normal educational expectations, such as on examinations and examination results, on the promotion and classification of pupils, on any extra expenditures in which parents may be involved, in after-school free time of pupils, etc.;
6. the long-term implications of the innovation on supplies, budgeting and costs, the recruitment of teachers, the use and maintenance of media, etc.;

7. the extent to which the channels of communication, the transport problem the transfers of teachers and materials, the financing of the project can be run smoothly to expedite the implementation of the innovation.

Among the quantitative aspects that have to be worked out and maintained, there are: (a) the number, type and level of pupils involved; (b) the number of teachers effected, the number to be retrained, the number that can be retrained at any one time, the number of new teachers needed and the number that can be recruited at any one time, the number of new places that are to be or can be made available at training institutes, including new staff needed at training colleges; (c) the number, order and distribution of textbooks, teaching materials, teaching guides, teaching aids and other media or supporting material, including the employment of new staff (technicians, etc.) and the installation of resource/media centres; (d) the time needed to supply the schools with the necessary materials, personnel and equipment; (e) the changes needed in school buildings, if any, including a building programme and costs; and (f) the cost of each item, budgeting in terms of capital and recurrent expenditure, cost-benefit and cost-effect analyses of the programme and the origin of resources.

The above lists are by no means exhaustive. Thus, for example, the organisation of conferences and discussions with head teachers, administrative staff and parents has not been included. Similarly, a good innovation ought to be supplemented by suitable information (usually in printed form) which would be available to all interested and to all concerned. The above two lists are a good indication, however, of the manner in which the administrative staff in an education office will be involved. The deployment of the administrative personnel in a strategic and functional manner to cater for curriculum services is an important aspect of management. Neagley and Evans 1/ give an example of how curriculum services are organised in a particular Department of Education (pupil population of 277,000) in the U.S.A.

In this particular department, Curriculum Services forms one of the three major divisions, the other two being Business Services and Special Services. The Curriculum Services Division focuses on the improvement of instruction, on pupil development and on the preparation and distribution of resource materials. The division is organised in five sections:

(1) A curriculum co-ordination section provides direct services to teachers and administrators in the smaller districts. Special curriculum co-ordinators (equivalent to inspectors or organisers in other countries) offer resource and consultant services. Typical activities include:

- Planning and co-ordinating in-service education through meetings, workshops and demonstration;
- helping develop and evaluate instructional materials and testing programmes;

1/ Neagley, R. L. and Evans, D. N., op. cit., pp. 76-80.

- consulting with district administrators or programme planning;
- aiding in surveys of educational needs and in drafting educational specifications for new school construction;
- working on course study and curriculum development projects on a district, regional and country-wide basis; and
- planning and conducting curriculum research on an inter-district basis.

2. A pupil-personnel section works with teachers, administrators, school guidance counsellors, parents and community welfare agencies to help local districts in the development of guidance and special education programmes for pupils. Typical activities include:

- organising and conducting guidance seminars for counsellors, parent education study groups and teacher workshops;
- consulting with districts on testing programmes, cumulative record systems, career conferences, counselling services, guidance materials;
- assisting districts in providing programmes for pupils with physical and speech handicaps, emotional problems and other special needs;
- helping districts in research projects; and
- co-ordinating inter-district guidance activities and school and child welfare agency relationships.

3. An audio-visual section operates a complete instructional materials centre. Various kinds of learning resources - such as films, filmstrips, charts, prints and tape and disc recordings - are previewed, selected and purchased. These materials are then delivered by vehicle weekly to contracting school districts. Staff members of the audio-visual section assist teachers to make better use of learning materials by conducting demonstrations, workshops and conferences. Professional technical assistance is also given in the selection, maintenance and repair of audio-visual equipment. Other staff members assist local district technicians in the production of original instructional materials such as overhead projection transparencies.

4. School library section. Textbooks and supplementary reading materials are supplied to elementary schools. Teachers request books to meet the needs of their instructional programmes. The curriculum library maintains an up-to-date collection of professional books, pamphlets, magazines, sample texts, tests and teaching units for the use of teachers, supervisors and curriculum workers.

5. Community educational resources section. Staff members of this section work with local scientists, education and management and research personnel to develop new ideas for instructional material designed to enrich classroom learning experiences. Many resources of the community are tapped to improve instruction at all levels.

5. The case of small countries

The above example has been chosen for two reasons: (i) because it serves as a good example of the organisation of an Education Office (albeit at the intermediate level) oriented towards curriculum development in the meaning of the term used all along in this study; (ii) because, in the opinion of the writer, it serves as a practical example which can be profitably applied with suitable adaptations, to the needs of small countries like the one from which the writer comes.

In fact, small countries have very particular problems which need special consideration. They are faced with a number of handicaps and disadvantages such as lack of resources, lack of expertise, a tendency to become isolated from current progress and the dependence on other countries for their sources of knowledge and information. Above all, there has been a marked lack of research on their particular place and needs in the world of education. The 1970 Gränna Seminar 1/ pointed out that, however, curriculum work is organised, each country will have to provide for four functions: (i) the determination of the specifications of the curriculum, including the content and objectives of curriculum; (ii) the development of learning materials and instruction, including the trying out of materials and procedures under appropriate conditions with students and teachers to find ways and advantages of each set of materials and techniques; (iii) the evaluation of the effectiveness of learning materials and instructional procedures including the creation of appropriate techniques, the use of appropriate sampling procedures and research design and the analysis of the evidence by appropriate statistical and data-processing procedures; and (iv) the in-service and pre-service training of teachers for curriculum changes.

The present writer would add that small countries also need:

A documentation centre where a library of suitable educational literature, up-to-date curricular packages and techniques, teaching materials and aids are kept, studied, perused and evaluated to help curriculum planners and teachers with their tasks.

The organisation of both empirical and applied research on the particular needs of their educational system including the state of society, the equality of educational opportunities, the needs of particular groups of pupils, teaching-learning techniques, social factors influencing pupils, teachers and pupil-teacher relations, curriculum improvement and design.

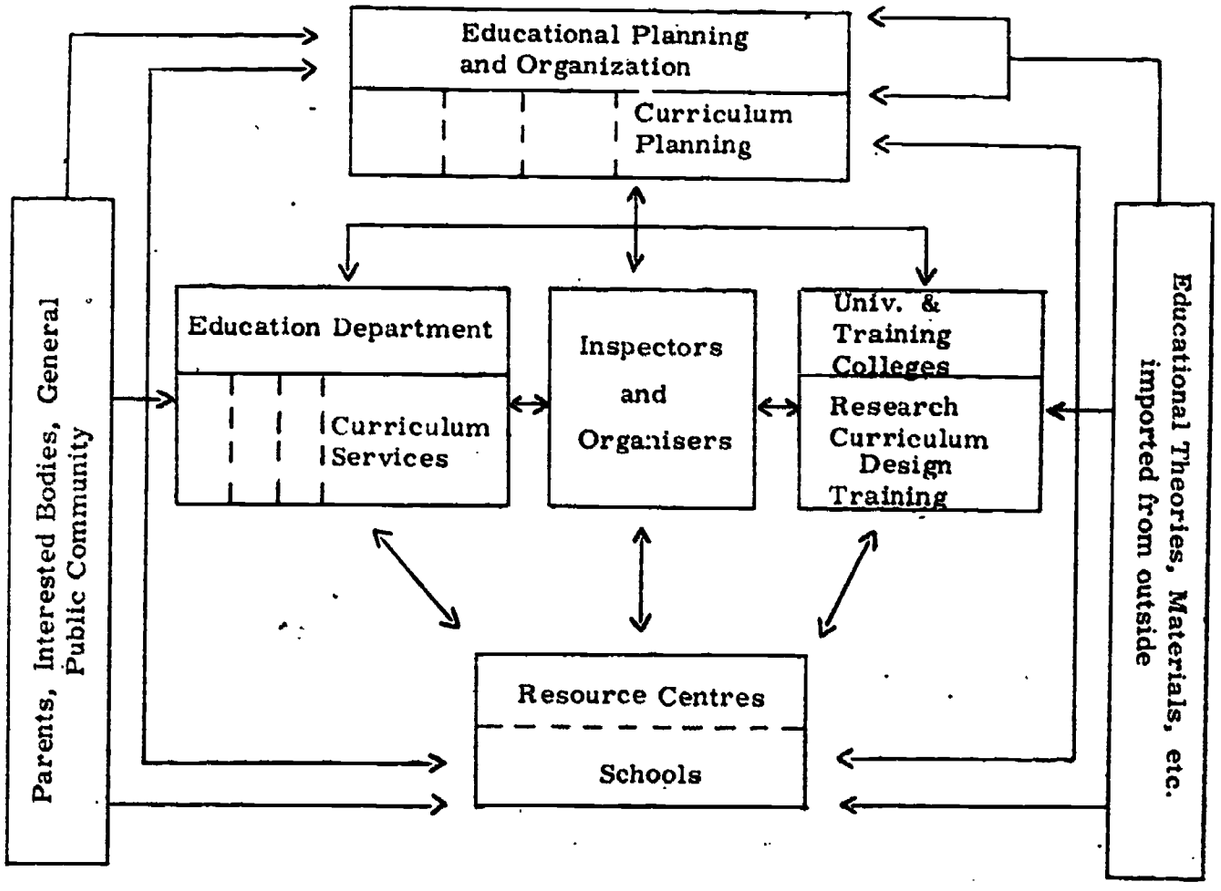
The recruitment and training of a suitable number of specialists in curriculum and educational work in order to lay the foundations for sound educational and curricular development, including the constant replenishing and resupply of personnel.

1/ ILEA, "International seminar for advanced training in curriculum development", op. cit., Appendix I, pp. 2-3.

The need to separate curriculum planning, curriculum design and curriculum development from the curriculum services and supply has been made amply clear. The training colleges and a University Department/Institute of Education, if well organised and articulated with the planning and educational organisation systems, can be entrusted with the research into educational and curricular problems, the construction of learning systems and techniques, the training and retraining of teachers. The Education Department's administrative and technical machinery can be entrusted with the organisation of the quantitative, material and financial implications of curriculum needs while departmental inspectors/organisers would act as liaisons between the teachers and the administration and help both the administration and the training/research institutes with their findings and expertise. The duty of the planning officer and/or planning board would be to orchestrate the whole system, to pay attention to standards, to plan new curriculum needs.

A tentative plan of such a network would be represented as Figure 5.

Figure 5.



IV. CHANGING ROLES OF TEACHERS AND ADMINISTRATORS

In her book, "Curriculum development: theory and practice", Hilda Taba 1/ noted that to change the curriculum requires changes in people and in institutions. Curriculum development in an educational system responding to and trying to cope with outside change requires radical changes in the roles of teachers, headmasters, inspectors and educational administrators as many of us have grown up to understand them. The history of educational development in the last hundred years is replete with instances of teachers who were employed to accomplish very specific and routine tasks by administrators, of headmasters who acted as foremen of works over their staff, of inspectors who reported teachers who dared depart from prescribed textbooks and set methods of teaching, of educational administrators who spent most of their lifetime in patching up and supporting a stale and static educational structure. So much so that one educational writer 2/ compared educational, i. e. curricular progress, as moving from one 'tyranny' to another - from the tyranny of literacy to the tyranny of subjects, to the tyranny of payment by results to the tyranny of lesson notes to the tyranny of examinations, etc.

It cannot be said that educational systems have everywhere overcome these problems. Social institutions have a particular tendency to collect and thrive on traditions; human workers have a particular inclination to work to a routine once they have mastered the basic techniques and, very often, to choose lines of least resistance and to amass a bag of 'tricks of the trade' to display on occasions; bureaucracies seem to particularly favour routine duties, to spurn changes that will upset the normal smoothness of the organisation, even to become obsessed with the notion that records and triplicate forms are more important than what is written on them. 3/ It thus becomes a very difficult task to switch an educational system from one that perpetuates a static concept of itself to one that takes innovation and change into its stride without striking at the very basis of the organisation (namely, the roles which its various members play) and without redefining and implementing new ideas in terms of the objectives and the new kind of work expected of them.

Changing a role is in many ways like changing a culture. A culture has been stated to be composed of a system of values, of symbols and of tools. Of the three, values are the most difficult to understand and alter because there are hierarchies of them. Changing the role which a person or

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1/ Taba, Hilda, Curriculum development: theory and practice, p. 63.

2/ Raymont, T., Modern education: its date and first principles, Chapter 2, MacMillan & Co., 1949.

3/ Coombs, P.H., The world educational crisis - a systems analysis, p. 120.

an organisation plays in society and in its work may not necessarily entail the changing of its values. The most important and basic values can be redefined; new values may be unearthed; other values can be instilled. Of the three aspects, tools are the ones which are subject to the most rapid change. The rapid change of the tools affects the symbols which in turn affect the values. One important point to remember in changing the value system is, therefore, to change the tools.

Changing the tools by itself may not be productive of the desired result. The changing of the tools must be accompanied by a suitable change in the ability to understand and use them effectively. Hence, the concept of learning and/or training in the use of the new tools. This affects the symbol system which, in turn, reorganises the values. Any organised body which aims at changing the roles of its members and their (or outsiders') concept of them must not only alter the tools of the system but also train and retrain its members in the right use and understanding of the new tools. Applied to curriculum development and innovation, a change in the role of teachers, headmasters, inspectors and administrators can only be effected by effective recruitment and by training in the new concepts and techniques.

1. The changing role of teachers

An educational policy, based on a flexible situation in which curriculum change and curriculum innovation are taken as an essential aspect of a good system, demands an equally flexible teacher who is able to teach well, to adapt himself to and understand innovations, to participate in the change process, to supply a reliable and sound feedback and who can be trusted with the carrying out of experiments on his own. It has already been hinted in 'II' that the role of teachers is changing from that of an instructor to that of a manager of learning situations. Curriculum development is based on an increasing amount of technology in the instruction process followed by an increasing number of evaluation tasks. The organisation of the teaching lesson shifts from one in which a certain amount of knowledge is imparted to the pupils by the teacher, to one in which the teacher participates actively with the pupils in organising their own work, discovering learning, discussing and using the knowledge they find out.

The teacher, therefore, needs to know more about how learning takes place, how to organise and prepare the proper environment and background needs for learning activities, how to manipulate teaching media and aids, how to organise work groups and how to act as leader and guide. At the same time, he must know in what direction the work of the group is leading, how much each and every member of the group is contributing to and learning from the activity and to provide remedial work where necessary.

More individual attention to the pupil is expected of the new teacher than ever before. This does not mean solely that teachers should test pupils regularly in order to see how much each of them has gained from the experience. It means, above all, keeping note of the 'value added' of education and evaluating assessments. This requires an accurate knowledge of the child's abilities and standard of achievement before the new learning has taken place; together with a knowledge of the sociological and psychological factors of a pupil, his family and his environment which have an important bearing on his learning, education and personal growth. Standardised and objective tests are given to pupils and recorded. The filling, use and interpretation of cumulative record cards is one of the features of modern educational systems which shift the emphasis from ad hoc tests to a more reliable developmental evaluation of a pupil's progress. Formal and informal contacts between teachers and individual pupils provide 'therapeutic' (vs. instructional) approaches to pupils' problems outside the immediate learning or curricular situations. 1/

The teacher's new kind of work adds more organisational, evaluative and therapeutic techniques to his task. The teacher of today meets his colleagues to discuss pupils' progress and to adjust curricular and teaching needs accordingly. He has to meet teachers of other subjects and to work out new approaches to curriculum such as team-teaching or school projects. He also has to consult with educational, psychological and vocational guidance officers, school medical officers and school consultants more than ever before, because as education becomes more complicated and sophisticated, he can no longer carry out the whole burden by himself nor can he claim to be an expert in all fields. Concurrently, he is given greater responsibility and autonomy by his head-master and inspector.

Teachers who work in an atmosphere of curriculum development are expected to conduct and undertake their own evaluative measures on existing curricula, to adapt and re-adapt curricula where necessary and to conduct and carry out their own experiments. This is one important way in which teachers can participate in curriculum reform. 2/ Inspectors and programme organisers act as consultants, helpers and outside advisers. Successful improvements are diffused and disseminated. The new teacher is expected to participate intelligently and professionally in staff discussions and in working groups on curriculum matters.

1/ Bernstein, B. et al, "Ritual in education", Philosophical transactions of the royal society, Series B, 1966.

2/ Bennis, Benne and Chin, op. cit., Benne and Birbhaum: "Principles of changing", p. 334. "The effectiveness of a planned change is often directly related to the degree to which members at all levels of an institutional hierarchy take part in the fact-finding and diagnosing of needed change and in the formulation and reality-testing of goals and programmes of change."

Modern educational and curriculum needs require a great deal of expertise in specified fields of which the teacher of yesterday knew next to nothing or which he often put into the background of his work. The relation of the teacher's new duties with the work of these new offices is changing his role and his work. In any school, the need for a media resource officer becomes more strongly felt as media and materials become more widely used and diffused. Educational, psychological and vocational guidance officers need the teacher's help to carry out their work well; they also help the teacher to acquire a greater understanding of his pupils. In some educational systems, the need for teacher assistants is becoming more increasingly felt, not only because larger groups of children can thereby be taught, but also because help may be needed in carrying out some of the clerical work which new teaching and curricular techniques entail.

The training of teachers

Changes in the role of teachers can only come about after the formulation of clear policies of what is expected of them is translated into substantial (and, one would add, massive) training and retraining programmes. These would naturally have to be followed by suitable working conditions and motivations. It is becoming increasingly evident that prospective teachers should be recruited after having successfully completed a long secondary education and, if possible, with qualifications at the level of university entry. The gap between different categories and levels of teachers should be narrowed as much as possible. Suitable criteria for the selection, recruitment and 'maturity' of students in intellectual and personal abilities have to be carefully devised. It has often been known that, under the pressure of increasing enrolments or from lack of suitable candidates, teacher qualifications, age, abilities and training have been reduced to the detriment of the quality of education as a whole. For this reason, training and compensatory benefit allowances should be adapted to the quality of the product rather than to immediate needs.

It is most important that the training of modern teachers should aim at producing a teacher who is flexible in his approach, able to teach at different grades within the same level (or even within different levels), ready to experiment with and support innovations, and able to understand the importance of understanding the child, the need to update himself and his techniques, and to grasp the meaning and scope of innovations. Comparing training methods with future roles of teachers, Tahir A. Razik 1/ summed up the content of teacher-training courses as follows:

- Content should be designed to prepare prospective instructional managers for their role as facilitators of desired outcomes in pupils.
- Content should be designed to prepare prospective instructional managers for their role as performers of certain non-instructional roles.

1/ Razik, Tahir A., Systems approach to teacher training and curriculum development, Chapter 2, Unesco/IIEP, 1972.

- Content should be designed to develop general purpose skills that can enhance or facilitate the application of professional skills.
- Content should be designed to provide for the personalisation of all competencies.
- Content should be designed to prepare instructional managers for the future.

The retraining of older teachers goes hand in hand with the training of new teachers, if the old system is not to overcome and annul the new ideas of the young teachers who are appointed to fill vacancies and/or meet new needs. Material and moral rewards, by way of bonuses, promotions and positions of responsibility often work better in inducing older teachers to keep themselves up-to-date than security of tenure and increments in salaries.

In dealing with teacher training, one must also consider the needs of the teacher-educators themselves. The selection and recruitment of training college lecturers can no longer be made on the basis of teaching experience alone (if long teaching experience is at all necessary any longer) but among other things, on the basis of qualifications, experience of teaching methods and educational systems, ability to organise student groups and projects, and on their ability to conduct research. Training college staff, too, need to refresh their abilities and to undergo further training to keep themselves up-to-date.

Teachers' centres

Teachers' centres are one of the most recent and successful innovations in curriculum development service aimed at changing the role of teachers while bringing them more directly in contact with the process of participation in curriculum development and the diffusion and dissemination of innovations. Originating in the form of 'centri didattici' in Italy some years ago, different countries use different methods of approach and organisation. An interesting feature of the British teachers' centres, for example, is the informality which pervades the meetings and sessions. 1/ Other countries like France use documentation and resource centres in much the same way. 2/

A teacher's centre may function on a regular basis for different curriculum aspects or general educational problems by: (i) acting as a meeting place where teachers can discuss curricular problems, formally and informally, among themselves with curriculum builders/experts, with educational experts, etc.; (ii) organising conference workshops, discussions, previews, exhibitions, etc.; (iii) providing a documentation service including opportunities for the evaluation of materials; (iv) providing facilities where teachers can develop, discuss, adapt curriculum materials and needs.

1/ U.K. Schools Council, Curriculum development: teachers' groups and centres, working paper No. 10, HMSO, London, 1962.

2/ The writer had the occasion to visit one of these centres during an IIEP visit to Montpellier in February 1972.

It is in the informal (as against tutorial) atmosphere created within the teachers' centre, that best enables the teacher to examine and re-assess his new role vis-à-vis his old methods and to compare himself with others.

2. Changing headmasters' and school principals' roles

School principals and headmasters differ in the way they run their schools. 1/ Very often, the way in which schools are run does not depend solely on the headmaster's educational ideas, temperament and organisational expertise but also on the constraints imposed upon him by the ideas of his staff and the pupils, by the conditions of the environment including the state of the building, by pressures brought to play upon him by parents and/or higher authorities. It is safe to assume, however, that in general, the role which headmasters have tended to play in relation to their schools, staff and pupils has been of the 'paternal' type 2/, and this idea is also very much in the minds of outsiders.

In other cases, headmasters play the part of minor organisers of small school systems under the direct instructions of superior authority. They may have little freedom in changing curricula and schemes of work, in ameliorating teaching procedures and pupil classification techniques, in experimenting with innovations. They are expected to see that regulations are carried out by the teachers and act as public relations officers for the central authority with the parents and the public in their area. Their relation with their staff is not one of leaders among peers, but of foremen and inspectors of work.

Musgrove 3/, following Taylor, defines the role of a headmaster as instrumental, expressive, administrative and academic. The headmaster is both an instrument and an expression of how his school works; his duties include academic and administrative ones. There is need for headmasters to be chosen for their 'learning'; but they should also have a good grasp of educational theory and practice especially of the level in which they are employed. Above all, they must be good administrators, organisers and managers. The administrative duties of headmasters, unlike those of teachers and inspectors, involve wider aspects than purely educational and curricular problems. In fact, one must say, at the headmaster's level, we have the first step in educational planning in all its forms, to include programme planning, personnel deployment, finance and budgeting, evaluation and decision-making. We also have the first step in the administrative hierarchy involving the

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1/ Hoyle, Eric, "How does curriculum change?", op. cit., pp. 387-389.

2/ Musgrove, F., The school as an organisation, MacMillan, London, 1968. pp. 40-44.

3/ Loc. cit.

implementation and servicing of policy decision and their management. Abbott and Eidell 1/ noted that under the impact of increased use of technology and technological methods in education, school administrators are forced to develop a capacity for understanding their organisation as a total functioning system including the ability to identify various components within the system, to understand the interdependencies that exist among these components and to plan in advance alterations that are required when a deliberate change is made in the production (instructional) component. Secondly, administration in schools will become more and more a supportive function in contrast to a controlling function. Thirdly, administrators will need to develop the skills and provide the tools for more adequate and sophisticated use of information in educational planning; and fourthly, the introduction of new personnel specialisations in schools with a concomitant increase in the decision of labour, will place new demands on administrators for co-ordination.

The managerial and organisational abilities of headmasters in situations of curriculum and educational change, presume other important qualities besides their academic and educational expertise. Authority must be delegated for better organisation and more active participation in curriculum and educational decisions; at the same time, headmasters should know what is going on in their schools and round about them. Because of the developmental nature of aims and goals, headmasters cannot have any fixed or fixated ideas about educational practices and techniques. The new methods of organisation require that these should be based on objectivity rather than subjectivity. The efficient headmaster delegates authority, then works in consultation with his staff and outsiders (in the form of other education personnel, consultants and inspectors) to arrive at decisions. At the same time, frictions and pockets of resistance tend to emerge more frequently between the headmaster and his staff as the gap between him and them becomes wider as a result of the new intermediate levels of authority introduced and of the greater managerial responsibilities imposed upon him. These can be avoided by keeping personal contact with his staff, by recognising that there can be leadership opportunities in each and every member under his control, by launching, sanctioning and keeping in touch with educational experiments and innovations.

In the case of small countries or small local education authorities, headmasters can form a useful and dynamic corps of curriculum experts and innovators. Consultation and meetings with and among headmasters can aid and further curriculum development in the whole region. Headmasters and schools can thus be led to participate more fully and concertedly in curriculum development.

1/ Abbott, M. G. and Eidell, T. L., "Administrative implications of curriculum reform", Educational technology, May 1970, p. 64.

All these points lead once more to the problem of recruitment, selection, grooming and training of headmasters. In many countries, principles of educational administration are included in training college curricula. But these are meant to be initiatory and of an elementary standard. Headmasters should be carefully selected according to criteria which reflect on their future roles as instruments and expressions of the school system, as academics and as administrators. They should have special training in educational, administrative and managerial techniques. For headmasters to be considered as a professional body, they need to know management techniques. The need for training in this field in England has been pointed out by M. Brichenough 1/ in the following terms: "In dealing with these (comprehensive school) problems, heads are particularly interested in advice on curriculum development, ability grouping, social organisation, relationships with further education and with outside agencies such as the Youth Employment Service. They are concerned above all with the effective use of resources and especially with the deployment of staff. There has been a demand for the training and retraining of heads and senior staff in the management of schools".

Since the academic, basic educational and personal character qualifications required of prospective headmasters and school principals would usually have been reached before they apply for posts, and screened during the selection procedures, the training of future heads of school should, thus, be more directly oriented to wider educational problems and to administrative and management theories and techniques, special to the field of education and including planning. 2/ A wider experience of schools (local and outside) by visits and perhaps short periods of 'apprenticeship' followed by analysis and discussion would not fail to prepare them better with the problems they will be expected to meet and to enable them to form clearer ideas and plans of their future responsibilities.

3. The changing role of inspectors

Inspectors are given different functions and degree of authority in different countries but almost in all of them at one time or other, they have come to acquire a notorious reputation and to find themselves the object of organised resistance by teacher unions. In many countries,

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1/ Brichenough, M., "The contribution of a central inspectorate to innovation in education", op. cit., p. 5.

2/ Different countries use and propose different training schemes suited to their particular needs. One may, for example, be interested in comparing American schemes and suggestions: Stone, Donald, Education for development administration: a symposium, International Institute for Administrative Services, Brussels, 1966, pp. 37-40 with British schemes: Lewis and Loveridge, The management of education, Pall Mall Press, London, 1965. The American system of training seems to be more operationally oriented.

inspectors control teachers' progress and promotions; in others, they control and manage an education area; in some other countries, they simply note, comment and report to higher authorities for action.

In all fairness, the inspector is an important person in the strategy for educational management. Theoretically, he is the person entrusted with seeing that public moneys are well spent and that educational standards are maintained. For this reason, in some countries, the inspectorate is outside the administration proper and reports to or advises the Minister. In many instances, inspectors have acted as agents of change in education by disseminating new ideas in schools and in training colleges. In general, however, when inspectors act as functionaries and/or as the implementors of the policy decisions of administrative authorities, they lose both their expert functions and their freedom to introduce innovations as well.

A question that is often asked in educational systems committed to responding directly to environmental needs, student needs and developmental curricula is: 'are inspectors necessary any longer? ', and there is much to be said against the retention of their roles as arbiters of teachers' efficiency and of the efficiency of schools on the subjective evaluative criteria usually used. But the role of the inspector can be developed and adapted to suit modern educational situations and to help promote educational and curricular development. Inspectors need, in other words, to become more interested in the organisation of curricula and to act as helpers and consultants, rather than mere judges. This requires of the inspector to be expert not only in the content of his specialty, but also in its methods of teaching, the latest theories on and innovations in the subject as well as in the extent to which these can be developed and adapted to suit particular needs.

In an educational system committed to change, the 'inspector' is expected to be able to envisage long-term changes needed in his specialty in the schools; and thus, to help planners in tackling problems of how to introduce innovations smoothly into existing systems. At training college, retraining courses and school levels they can do much to help orient teachers to curriculum change and development. They can act as diffusers of change; they can smooth teacher-pupil, teacher-head teacher, school-parent problems and they can aid, support and advise on experiments carried out in schools.

The emerging role of the inspector is that of a consultant. While the need of consultants to help the organisation and management of schools is becoming more increasingly felt and more openly discussed, differences exist on who should these consultants be. One school of thought 1/, for example, argues that they should be specially trained persons who would be able to bring about

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1/ Hoyle, Eric, "Planned organisational change in education", Research in education No. 3, May 1970, pp. 8-13.

necessary curricular/educational changes as well as a smoother relationship in, and change of roles among, school staffs as well. The idea seems to be catching on that the comparatively vast number of inspectors, advisers and organisers employed by any education authority can be more usefully employed in consulting capacities. 1/ Consultation includes both organisation and advice.

There is no reason why inspectors or consultants should not engage in research and in the evaluation of educational progress. In a 1966 Symposium on Education for Development Administration, Donald C. Stone 2/ proposed the idea of 'development generalists' in administrations whom he defined as follows: "They hold responsible position in office of prime ministers, presidents, planning and budget agencies and cabinet secretariats; in development banks; in co-ordination and implementation agencies; in central ministries; and in educational institutions. They are the chief directors and administrators of development. Development generalists are needed also as advisers and researchers for government and for the staff of institutes and schools". Such persons require a very broad and intensive preparation which includes: (i) the basic conditions for development action; (ii) substantive issues and problems; (iii) development procedures; (iv) technological requirements; (v) resource mobilisation and application; and (vi) other significant elements relevant to the particular category of personnel.

This brings us once more to the problems of selection, recruitment, training and retraining of these professional consultants. More and more, the inspectorate is being seen as a professional corps of experts in their various fields and specialties. Recruitment is done on the basis of expertise rather than on teaching experience alone. Teachers and headmasters, training college lecturers and teacher trainers who have specialised in an educational/curricular activity and have contributed either by organisational procedures or research findings to the advancement of knowledge in their field are more likely to be suitable as inspectors and to apply their knowledge in curriculum development to changing situations than persons promoted from the ranks on the basis of seniority. Young, active, dynamic persons are more suitable, and bound, to give greater and more useful service than aging personnel who may have exhausted their energies in teaching or the managing of schools. Even so, selected personnel have to be specially trained for their new tasks especially in the field of consultancy and handling personal relationships. 3/ Inspectors can be kept up-to-date by widening their role so as to include helping in teacher training, taking part in international meetings and conferences, assignments to universities for short periods, etc.

1/ Owen, J., "School centred patterns of support and change", op. cit., p. 9.

2/ Stone, Donald, op. cit., p. 35.

3/ CERI: "Educational technology: the design and implementation of learning systems", op. cit., pp. 62-63. Hoyle, Eric, op. cit., p. 15.

4. A note on the integration of different educational levels

Although the idea may have been obtained from what has been said before about the insistence of more expertise, more precise role functions and more delegation of authority in order to modernise education and educational administrations for greater curriculum efficiency and development, actually, the notion that curriculum development tends to involve the individual learner rather than the structures and levels he goes through leads to the need of breaking down or smoothening as much as possible the barriers and differences that exist between one stage and another. This is especially true of the general education stage, which often includes pre-primary, primary, lower secondary, secondary and sometimes pre-technical, 'college', and pre-university education as well. The integration of the various levels of education and the 'integration' of the teaching profession often go hand in hand. Very often, these different levels exist for reasons other than purely educational or curricular ones. Old management techniques, the use of one level as a form of promotion for teachers from a lower one, different selection, recruitment, training and conditions of service, often act as perpetuators of these levels. Economists and educational planners, constrained by lack of resources and an urge for quantitative optimisation often end by further entrenching the different levels and categories of teachers.

Modern curriculum and educational techniques require a flexible teaching body including a more active and change-oriented inspectorate. The merits of a flexible teaching force do not lie solely in that teachers can be used more strategically; they also include stability within the levels leading to the increase of more qualified personnel at every level. Teachers should be assigned to teach in one level or another not because conditions of service in one are any better than in another, but because they feel they find the greatest personal satisfaction in a particular level, provided they are qualified for it. A common and combined system of teacher recruitment and education, an efficient system of transfer of teachers from one level to another or one category to another, without loss of service, status and salaries and opening all promotions to teachers on the basis of merit and qualifications are some of the means which can be employed to integrate the various levels more fully and vice-versa. Raising the standard, length and quality of teacher training for the lowest levels (followed by suitable increases in initial salaries) and filling the lower levels with teachers of the same educational and professional qualifications as those of higher ones are other variables that can be used to close the gaps. The St. John's College, Cambridge, Workshop or the Management of Innovation in Education 1/ points out: "Training and retraining

1/ Op. cit., p. 54.

[illegible] of critical importance, not only for the introduction of required changes but to build up the teachers' self confidence and commitment. Countries with a divided profession - elementary versus [illegible], specialist versus teachers of general subjects - have particular problems".

5. Changing the role of administrations and administrators

Although strictly speaking, school principals and inspectors may be classified as administrators or forming a part of educational administration either by their functions or by their attachment to administration, the terms 'administration' and 'administrator', in this specific connection, are largely intended to mean central and/or regional education offices and officers who administer education in their area. The special characteristic of such administrations and administrators is that they implement policy; they also often initiate and formulate their own administrative policies within the implementation process to facilitate such implementation.

That educational administrations, like many others, have tended to become bureaucratic and static is well known. One recent publication 1/ goes as far as to state: "It is common in many countries for administrators to have no real understanding of education; in others, they have been recruited from the profession but have no retraining after this. In the administration of a static educational system, this deficiency was of little importance; but now that they have to make decisions on a rapidly changing spectrum, they are inadequately equipped. The training that they need is much the same as for... (head teachers, inspectors and advisers) but with less detail on institutional management and with an additional section on the systematic approach to larger sub-systems of the total educational system of the country itself... Basically, the value of the training of administrators will be to enable them to encompass innovations and take policy decisions in co-operation with teachers. This group will derive benefit from interregional and international contacts and seminars".

Ananda W. P. Gurugé rightly points out in an IIEP occasional paper 2/ that in organising administrations and in recruiting administrators for modern needs, the terms have to be changed to 'managements' and 'manager'. "Management is conceived to be a broader activity than administration on the basis that management is focused on a process of decision-making, judgment and leadership involving planning, guiding, integrating, motivating and supervising while the other deals with the implementation of decisions and providing supporting services. As regards functions, it is clear that management is viewed as a line function, while administration is regarded as a staff function."

1/ CERI: "Educational technology: the design and implementation of learning systems", op. cit., p. 63.

2/ Gurugé, Ananda, A functional analysis of educational administration in relation to educational planning, IIEP Occasional Paper No. 16, Unesco/IIEP, 1969, p. 191.

This change in the role of administrations and administrators is not one that can be easily solved in practice as it is in theory because the switch from a purely administrative to a managerial role in administrations depends, among other things, upon political decisions, the status of similar departments in other fields of government and on the decision, initiative and ability of incumbent administrators. It may be possible through careful planning and fore-thought to help educational administrators assume more managerial (as against administrative) roles and to persuade them to delegate administrative matters to lower professional and technical echelons through a carefully organised and devised division of services on the lines, for example, suggested earlier in 'III' or that by Greenfield, House et al in their book, "Developing school systems - planning, organisation and personnel". 1/

One of the methods of bringing about better management is by the 'professionalisation' of the service. One would notice that at each level of administration there is need for generalists, specialists in educational services, specialists in supporting services, planning technicians. The four groups constitute a team of management. The professionalisation of the service comes about when each group is expert in its own field, including its management and then these groups act together in the formulation, organisation and execution of policies which would include planning policies.

One of the problems of administrations and administrators has been that of identifying exactly whom they are supposed to 'serve'. Administrators often come to the conclusion that it is their only duty to execute 'superior' orders by seeing that these orders are properly translated into quantitative and qualitative terms and by seeing that they are carried out. As a result, administrators tend to become authoritarian and closed to influence from the clients whether they are parents, teachers or schools. Highly decentralised systems, on the contrary, where there exists a lot of freedom at the grass roots level (i.e. the school or the district) may render difficult the organisation of an effective plan and the harmonisation of national possibilities and needs with the clients' demands. The setting up of a planning unit as a distinct but integrated unit of the administration - and one that is also commensurable to the size of the task or level of administration - is one of the ways in which this management problem can be solved. It will be the planning unit's task to draw together the various levels of administration and administrators into one combined unit in much the same way as Talcott Parsons 2/ envisages the role and functions of technicians, executives, experts and managers in the administration of education.

1/ Greenfield, T.B. et al, Developing school systems: planning, organisation and personnel, The Ontario Institute for Studies in Education, Canada, 1969, pp. 51-69.

2/ Talcott Parsons contribution: Halpin, W., Administrative theory in education, Mid-West Administration Centre, Chicago, 1948.

For a classification of the functions of an administration, Lyndall Urwick 1/ formulated the following fields: planning, organisation, staffing, directing, co-ordinating, reporting and budgeting (POSDCORB). This classification seems to suit the procedures involved in educational management including curriculum and curriculum development management. One observation that can be made is that planning, together with organisation, seems to pervade the other functions as well. There is need to plan the organisation, the staffing needs, the directing procedures, the co-ordinating channels, the reporting ways and budgeting. This applies equally to the administration from the point of view of curriculum development. For this reason, we shall leave a more detailed discussion of the relation of planning to educational administration with particular reference to curriculum planning, curriculum development and curriculum innovation to the concluding chapter of this work.

1/ Urwick, Lyndall, The elements of administration, Harper & Bros., New York, 1943.

V. A CONCLUSION: THE ROLE, PLACE AND VALUE OF A CURRICULUM DEVELOPMENT PLANNER OR PLANNING UNIT IN THE FORMULATION AND IMPLEMENTATION OF PLANS

All along in this short study, the emphasis has been laid on two major aspects of curriculum needs in modern schools. One is that curriculum planning, design and structure involves a series of well-defined steps and processes, following a circular pattern, which have to be followed and serviced if curriculum plans are to become more effective. The processes involve evaluation of the existing system determining new objectives if any, building/adapting new curricula, organising quantitative needs, including costs and distribution, evaluation. Two organisations have been mentioned which can look after this type of curriculum development; namely (a) the educational planning body and (b) the curriculum construction body. The second point is that curriculum development proper has to be viewed against a background of and responding to continuous change in the environment, in educational objectives, in the needs of the students, in the role of the teachers and in the development of education itself. It thus takes the form of a spiral and is a continuous process. Permanent organisations are needed to evaluate curriculum needs at every level and against different backgrounds; more active participation is needed from teachers, head teachers and inspectors (not to mention parents and students) in the process. Among the organisations needed for such a type of educational process, the establishment of centres for research and development or educational development institutes, resource centres, in-service training schemes and teachers' centres have been pointed out.

An important distinction has been drawn between the qualitative aspects of curriculum needs - namely, the determination of objectives, the construction of the curriculum, evaluation, research, the human elements and human resources involved - and the quantitative aspects - namely, the production of curricular material, its distribution, the personnel and facilities needed, costing, budgeting, and also its cost analysis. We have tended to delegate the qualitative aspects to a professional body of expert curriculum planners, organisers and consultants and the implementation of quantitative needs and general supervision over quantitative servicing to 'administrations'. We have pointed out, however, that the qualitative and the quantitative aspects come together at the educational planning level, before, during and after decisions have been taken.

Adam Curle 1/ distinguishes between three levels of educational planning and educational planners. At the highest level is the human resource development planning of which educational planning forms one aspect. "The human resource planner", he points out, "is less concerned with

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1/ Curle, Adam, "The professional identity of the educational planner", Fundamentals of educational planning No. 11, Unesco/IIEP, 1969, pp. 18-20.

the values of education than with the broader social and economic objectives - insofar as they can be separated from educational ones - of the country's development plans". Then comes educational planning proper which involves "the planning of the educational system, its curriculum and instruction, its expansion, improvement, the balance of its parts, its auxiliary services, among them research and textbook production". 1/ Thirdly, there comes the planning of special branches of education - a sub-branch of educational planning. "The educational planner", Curle contends, "tends to be broad-based, a man with a general approach who may not know very much about any particular aspect of education but who is capable of seeing the system as a whole. 2/ "On the other hand, the planner of, say, teacher training or science education or curriculum development (the writer's own underlining) or adult education or any of very many different facets of education must be an expert in his field. His task is not to construct the whole educational system but to think professionally about his own specialism and to provide for the maintenance of its standards and numbers within the wider context of the development of the whole system". 3/

The above statement clearly points to the need of a curriculum development planner or planning unit at the level and as part of educational planning. The need for such a planner or planning unit lies in the fact that, as we have seen in 'II', educational planning in general has tended to be dominated by purely quantitative aspects and needs and where qualitative aspects have been considered, they touched only the externals. The point is further elaborated by James B. MacDonald. "The process of developing the curriculum", he writes, "would necessitate an emphasis upon the role of a functioning catalyst, integrator and/or synthesizer. At the moment, it would appear that the curriculum director is the best candidate for this responsibility. The curriculum director (and staff) would by necessity become a curriculum scholar-in-residence in the school system. The special kinds of concerns that professional people in curriculum have would now become primary integrated foci for planning". 4/

Although MacDonald may be referring to particular curriculum directors in schools, the analogy may be equally made of a curriculum development director in education offices at the intermediate and national levels. A curriculum development planner will, on the one hand, supervise and oversee curriculum development and curriculum development plans (including the organisation of curriculum construction commissions and educational evaluation from the point of view of curricular

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1/ Curle, Adam, op. cit., p. 20.

2/ Ibid., p. 18.

3/ Ibid., p. 19.

4/ MacDonald, J.B., "Responsible curriculum development", Eisner, E., Confronting curriculum reform, Little, Brown and Co., Boston, 1971, p. 131.

aspects). On the other hand, he will work and collaborate with the educational planner in the formulation and implementation of plans as far as curriculum needs (qualitative and quantitative) are concerned.

The size and functions of such a curriculum development planning unit will naturally vary with the size and nature of educational planning units to which they are attached, to the level of the planning structure (district, region, national) and the size of the school system. Among the principal functions of such a curriculum development planning unit at the national level, one would include:

- The co-ordination of educational planning agencies with curriculum planning and curriculum construction agencies;
- the promotion of research and evaluation systems for curriculum development;
- the study and implementation of techniques that would promote curriculum development; and
- aid in the programming of funds and the drawing up of budgets for curriculum development.

At the regional level, the curriculum development planner or planning unit can:

- Co-ordinate the curriculum development planning agencies (educational planning institutes, curriculum constructors, curriculum evaluation, etc.) in the region with educational planning;
- co-ordinate the quantitative with the qualitative aspects of curriculum development planning including budgeting;
- co-ordinate the training and retraining services, including teachers' centres, resource centres and the work done by inspectors and in the training/research institutions;
- establish documentation centres for use by curriculum planners, curriculum constructors, curriculum evaluators, teachers, etc. and supervise their wise and efficient use;
- evaluate curricular development, educational development and general educational needs from the curriculum point of view, including pilot projects and experiments;
- supply and supervise consultant services to educational institutions for curriculum development planning; and
- promote and ensure active participation among all sections of the system directly concerned in curriculum matters for better curriculum development.

The curriculum development planner/planning unit will be in a position to supervise curriculum development, curriculum needs and curriculum innovations. It would be able to cost the programmes, budget for them, cost-effect the system and even provide alternative plans. A curriculum

development planning unit can pay more detailed and constant attention to efficiency savings, direct cost savings and savings arising from better utilisation of teachers and of equipment without sacrificing standards and/or quality than an overall general educational planner can.

One of the principal ways in which a curriculum development planning unit can help curriculum development is in the advice it can give to the educational planner on curriculum needs in the schools quantitatively (i. e. by way of teachers and materials including their quality) and qualitatively (by way of innovations and curricular changes). For this, curriculum development needs to be supported by curriculum/educational evaluations and research. A general educational planner may not be in a position to give due attention to these problems since, necessarily he would be more directly concerned with translating objectives and planning according to needs from the financial and manpower points of view. In fact, both the promotion of research and the proper evaluation of educational systems (apart from the evaluation of plans) have often been only hastily, if ever, given their due consideration.

Educational research needs to be promoted, studied, evaluated, documented, acted upon and diffused. It also needs to be directed, organised and financed. The curriculum development planner can supervise and take stock of the situation, recommend to and advise the educational planner, contact and obtain the co-operation of universities, training colleges and other research institutes. In short, he can play an important part in the promotion of curriculum research.

The same may be said about the evaluation of curricula and of education in general in the system. Evaluation procedures and techniques have to be organised, carried out, studied and acted upon. Under a system of continuous curriculum development, the evaluation procedures have to be continuous as well. The curriculum development planner can organise and supervise curriculum evaluation procedures in all their aspects and act as a focus point for studying the evaluations and acting upon the findings. In this way, he will be of invaluable help to the decision-makers in determining new curricular objectives.

In short, the curriculum development planner or planning unit can keep closely in touch with both the tactical and strategic needs for a more effective educational development all around. A Centre for Educational Research and Innovation (OECD) publication 1/ has listed down the wide variety of influences and constraints which act on the learning process and thus influence curriculum development. This classification seems to apply admirably as a framework in which curriculum development planning and a curriculum development planner can operate. (See Table 1)

1/ CERI, op. cit., p. 43.

Table 1. Factors of a learning system suitable for a framework of areas in which a curriculum development planner can work (after CERI)

	Frame factors inherent in Basic Teaching Learning Systems	Frame factors at Institutional/Community Level	Frame factors at Regional/National Level
Teacher	Motivation	Planning	Social status
	Knowledge and skills	In-service training	Teacher supply and teacher training
	Social behaviour	Ancillary staff - knowledge, skills, recruiting, training	Ancillary staff supply, recruiting and training
	Social relations outside school	Teacher-union activity within institutions and in community	
Student	Student participation	Student participation in school planning and management	Student participation in educational planning
	Entry behaviour	Relation to other institutions	Student organisations and organisations embracing students
	Motivation	Relationship to adults	
	Learning styles and techniques		
	Social behaviour		
	Social background		
Curricula and Media	Educational goals of society	Educational planning	Educational goals of society
	Curricula	Co-operation and co-ordination within and between schools	Curricula and curriculum material production
	Presentation of content - planning - teaching methods - accrediting of learning material - examinations and continuous assessment - co-operation and co-ordination with parties outside teaching/learning systems	Course material available Equipment available Maintenance and service Material storage/access Facilities/distribution service Material production facilities	- research - revision of goals - planning and providing for co-operation and co-ordination Equipment production Service distribution and consulting functions

Table 1 (continued)

	Frame factors inherent in Basic Teaching Learning Systems	Frame factors at Institutional/Community Level	Frame factors at Regional/National Level
	- type of media - 'appeal' of media Ordinary classroom teaching and/or preproduced by systems		
Environment	Space Equipment of learning environment Time	School management - planning organisation including innovative mechanisms - financial allocation systems - space and room allocation - time scheduling - routine administration - co-ordination Entry requirements Examination systems Expectations of parents Expectations of community Research Occasional tests, try-outs, experiments in teaching/learning systems	Educational planning Financial allocation systems Educational routine administration Entry requirements Examination systems Management training Feed-in, parallel and end-on educational institutions Empirical and long-term research projects Laboratory experiments Design and try-out of new systems Empirical evaluation International co-operation

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OCCASIONAL PAPER No. 29: discusses the implications of curriculum development and curriculum innovation needs upon education in general and educational administrations and educational planning in particular. It points out how administrations should change in their rôle in order to open up educational systems for change and the place of a curriculum development planning unit within educational planning.

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